

AIWA® SERVICE MANUAL

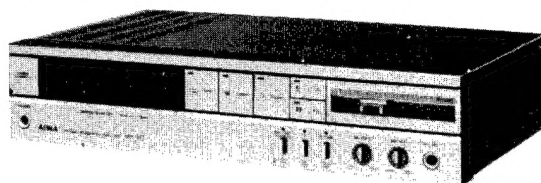
S/M Code No. 84-002
DATA OF ISSUE 2/1984

TYPE. H, HB, UB, E, EB, K, KB, G

**STEREO INTEGRATED
AMPLIFIER**

MODEL NO.

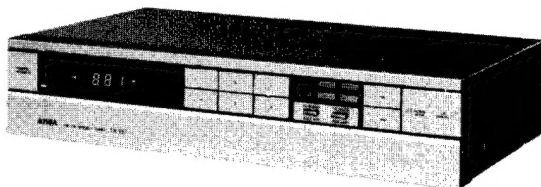
MX-90



FM/AM STEREO TUNER

MODEL NO.

TX-110

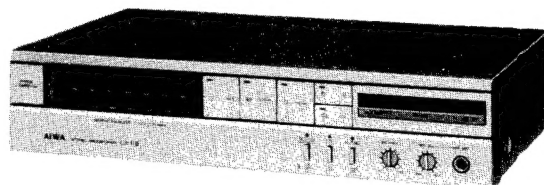


Shown above is TX-70H

STEREO PREAMPLIFIER

MODEL NO.

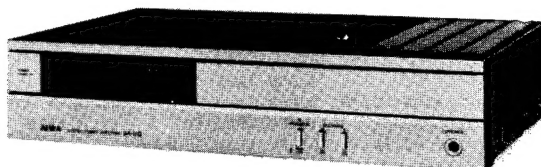
GX-110



**DC STEREO POWER
AMPLIFIER**

MODEL NO.

BX-110



SPECIFICATIONS

MX-90

| | | | |
|-------------------------|---|-----------------------------------|---|
| Power source: | H, HB models AC 120/220/240V switchable, 50/60Hz UB model AC 120V, 60Hz E, EB models AC 220V, 50/60Hz K, KB, G models AC 240V, 50/60Hz | Total harmonic distortion: | Less than 0.08% (1kHz, 30W, 8Ω) |
| Power consumption: | H, HB models 85W UB model 70W E, EB, K, KB, G models 160W | Output bandwidth: | 40Hz to 50kHz (Less than 0.5%) [Both channels driven, 8Ω] |
| Dimensions: | 330(W)×71(H)×200(D)mm (12-7/8"×2-5/8"×7-7/8") | Frequency response: | 40Hz to 50kHz (+0.5/-3dB) |
| Weight: | 3.6kg (7.92 lbs.) | Residual noise | Less than AUX 5mV |
| <POWER AMPLIFIER> | | Damping factor: | More than 40 (1kHz 8Ω) |
| Effective output power: | H, HB models 45W+45W (8Ω, EIAJ 5% 1kHz) E, EB, K, KB, G models 30W+30W (8Ω, T.H.D. 0.05%, 40Hz~20kHz) UB model only <FTC Rule> 35 Watts per channel, Min. RMS at 8 ohms, from 40Hz~20kHz, with no more than 0.2% Total Harmonic Distortion | <PREAMPLIFIER> | |
| | | Signal to noise ratio: (Weighted) | PHONO(MM) More than 82dB TUNER, AUX More than 90dB TAPE PLAY More than 90dB |
| | | D. S. L: | 60Hz 18dB±3dB |
| | | RIAA deviation: | ±0.5dB (30Hz~15kHz) |
| | | Channel separation: | More than 40dB |
| | | Input jacks: | PHONO(MM) 3mV/47kΩ |
| | | (Sensitivity/input impedance): | TUNER 150mV/47kΩ CD 150mV/47kΩ AUX 240mV/47kΩ TAPE 150mV/47kΩ MIC 1mV/5kΩ TAPE 150mV/47kΩ SPEAKERS 8Ω~16Ω |
| | | Output jacks: | |
| | | (Level/output impedance): | |

TX-110

| | | | |
|--|---|--|--|
| <GENERAL> | | Frequency response: | 30Hz~50kHz (+0.5/-3dB) |
| Power source: | H, HB models AC 120V/220~240V Switchable, 50/60Hz UB model AC 120V, 60Hz E, EB models AC 220V, 50/60Hz K, KB, G models AC 240V, 50/60Hz | Separation: | More than 35dB (at 1kHz) |
| Power consumption: | 10W | Auto stop level: | 30+5/0dB (at 98.0MHz) |
| Dimensions: | 330(W)×71(H)×200(D)mm (13"×2-3/4"×7-7/8") | Hi-Blend separation: | 13±5dB (at 1kHz, 98.0MHz) |
| Weight: | 1.9kg (4.18 lbs.) | <AM TUNER SECTION> | |
| Output level: | FM 180mV AM 150mV | Frequency ranges: | MW 530~1605kHz LW 144~353kHz (E, EB, K, KB models only) |
| <FM TUNER SECTION> | | Intermediate frequency: | 450kHz |
| Frequency ranges: | 87.5~108.0MHz | Sensitivity: | MW 52±3dB (S/N 20dB, bar antenna) (at 603kHz) 50±3dB (at 99.9, 1404kHz) |
| Intermediate frequency: | 10.7MHz | LW | 62±3dB (at 144, 200, 353kHz) (E, EB, K, KB models only) |
| IHF sensitivity: | H, HB, UB models 7±3dB (at 87.5, 98.0, 108.0MHz) E, EB, K, KB, G models 7±3dB (at 88.0, 98.0, 108.0MHz) | Image frequency interference ratio: | MW More than 40dB (at 99.9kHz) LW More than 40dB (at 200kHz) (E, EB, K, KB models only) |
| (THD 3%) | | Intermediate frequency interference ratio: | MW More than 40dB (at 99.9kHz) LW More than 25dB |
| 50dB quieting sensitivity: | Less than 36dB (at 98.0MHz) | Selectivity: | MW More than 25dB (±9kHz) |
| Image frequency interference ratio: | More than 45dB (at 98.0MHz) | Distortion: | MW Less than 1.0% (at 99.9kHz) |
| Intermediate frequency interference ratio: | More than 72dB (at 98.0MHz) | AGC characteristic: | MW 56±10dB (at 99.9kHz) |
| SN ratio: | (MONO) More than 74dB (98.0MHz) | SN ratio: | MW More than 48dB (100dB input) |
| (Weighted) | (STEREO) More than 66dB (98.0MHz) | Auto stop level: | MW 55±10dB LW 58±10dB (E, EB, K, KB models only) |
| Total harmonic distortion: | (Input level 60dB) (MONO) Less than 0.3% (at 98.0MHz) (STEREO) Less than 0.4% (at 98.0MHz) | Loop antenna: | H, HB, UB, G models MW 300μV/m E, EB, K, KB models MW 400μV/m LW 800μV/m |
| AM suppression ratio: | More than 50dB (at 98.0MHz) | | |
| Muting response: | 30±3dB (at 98.0MHz) | | |
| Effective selectivity: | More than 70dB (at 400kHz) | | |
| Capture ratio: | Less than 3dB (at 98.0MHz) | | |

GX-110

Power source: H, HB models
AC 120/220/240 V
Switchable, 50/60 Hz
UB model
AC 120 V, 60 Hz
E, EB models
AC 220 V, 50/60 Hz
K, KB, G models
AC 240 V, 50/60 Hz
10 W
Dimensions: 330(W)×71(H)×200(D)mm
(12-7/8"×2-5/8"×7-7/8")
2.1 kg (4.62 lbs.)
Weight: PHONO(MM), TUNER, AUX
S/N ratio: CD, TAPE, INPUT
(IHF-A) 76±3dB
50±3dB
Distortion: MIC
Less than 0.5%
(1kHz, 0.75V)
Frequency response: 35~50,000 Hz(+0.5/-3dB)
RIAA deviation: ±0.5dB(30Hz~15kHz, 0dB)
(1kHz, 0dB)
Muting level: 20±3dB
DSL response: 18±3dB(50Hz)
PHONO MAX. 100±20mV(REC OUT)
allowance input: (1kHz, 0.1%)
Graphic EQ. +10±3dB

response: -10±3dB
(40Hz, 125Hz, 330Hz,
1kHz, 2.5kHz, 6.3kHz,
15kHz)
Channel separation: PHONO, AUX, TUNER
(1kHz) 50±2dB
Input sensitivity/impedance:
PHONO(MM) 3mV/47kΩ
TUNER, CD 180mV/47kΩ
TAPE 180mV/47kΩ
AUX 300mV/47kΩ
MIC 1mV/10kΩ
Output/impedance: TAPE 150mV/47kΩ
Headphones 8Ω~16Ω
Speakers 8Ω~16Ω
<WIRELESS TRANSMITTER SECTION>
Power source: DC3V(SUM-3 "AA" cells
Current consumption: Below 50mA(Balanced, during
use); 30mA(When not in use)
Dimensions: 63(W)×22(H)×141.5(D)mm
(2-1/2"×7/8"×5-1/2")
100g(0.22lbs.)
Weight: ±4.5"
Transmission field: approx. 6m(20 feet)
Transmission distance:
Clock frequency: 38kHz±1%

BX-110

Power source: H, HB models
AC 120/220/240 V
switchable, 50/60 Hz
UB model
AC 120 V, 60 Hz
E, EB models
AC 220 V, 50/60 Hz
K, KB, G models
AC 240 V, 50/60 Hz
Power consumption: H, HB models
115W
UB models
100W
E, EB, K, KB, G models
270W
Dimensions: 330(W)×71(H)×200(D)mm
(12-7/8"×2-5/8"×7-7/8")
4.8 kg (10.57 lbs.)
Weight:
Power output: H, HB, E, EB, K, KB, G
models
60W+60W(8Ω, T. H. D.
0.01%, 20Hz~20kHz)
<FTC Rule UB model only>
60 Watts per channel, Min.
RMS at 8Ω, from 20Hz~
20kHz, with no more than
0.02% Total Harmonic
Distortion.

Distortion: Less than 0.008%
Intermodulation distortion: Less than 0.02%(50W, 8Ω)
Damping factor: More than 30
S/N ratio: More than 110dB
Frequency response: 10~50,000 Hz(-1dB)
Output bandwidth: 10~50,000 Hz(Less than
0.05%)
[Both channels driven, 8Ω]
Residual noise: Less than 1mV
Input/impedance: 700mV/47kΩ
Output: A or B 8Ω~16Ω
A + B 16Ω

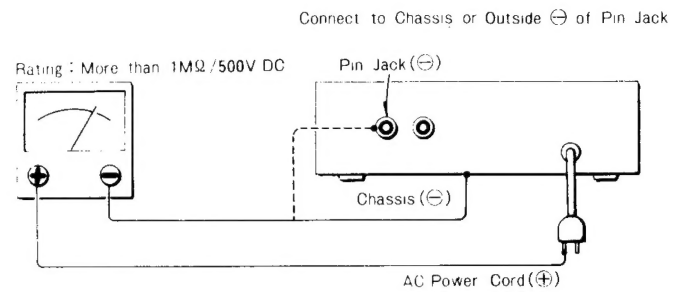
- The specifications and external appearance of this set are subject to change without prior notice.

Follow the instructions carefully, which will allow the user to optimise the products' performance and give many years of service.

1. No scratch and melting shall be made to covered lead-wires of an a.c. primary circuit including mains leads.
2. No illegibility shall be given to the specification plate, the caution labels, the fuse labels and others.
3. When, on pattern sides of circuit boards, additional repair-parts have been made up, the parts shall be firmly glued to circuit boards or other components, unless the parts can be attached firmly.
4. The following matters shall be maintained as they are, when repairing.
 - 1) Soldering of lead-wire ends
 - * Care should be taken of the space distance in an a.c. primary circuit as well as soldering.
 - 2) Wiring and holding of lead-wires with wire-clips and binders
 - 3) Materials of lead-wires
 - * e.g.; For UL models, lead-wires to be used shall be approved or accepted by the UL.
 - 4) Location of all kinds of insulators
 - 5) Setting of voltage selector switch
 - * Set the Voltage Selector Switch to 240V, 220V, or 120V, According to your Local Voltage.

5. After repaired, the insulation resistance or leakage current shall be measured with $500 \pm 5V$ D.C and shall be not less than $1M\Omega$.

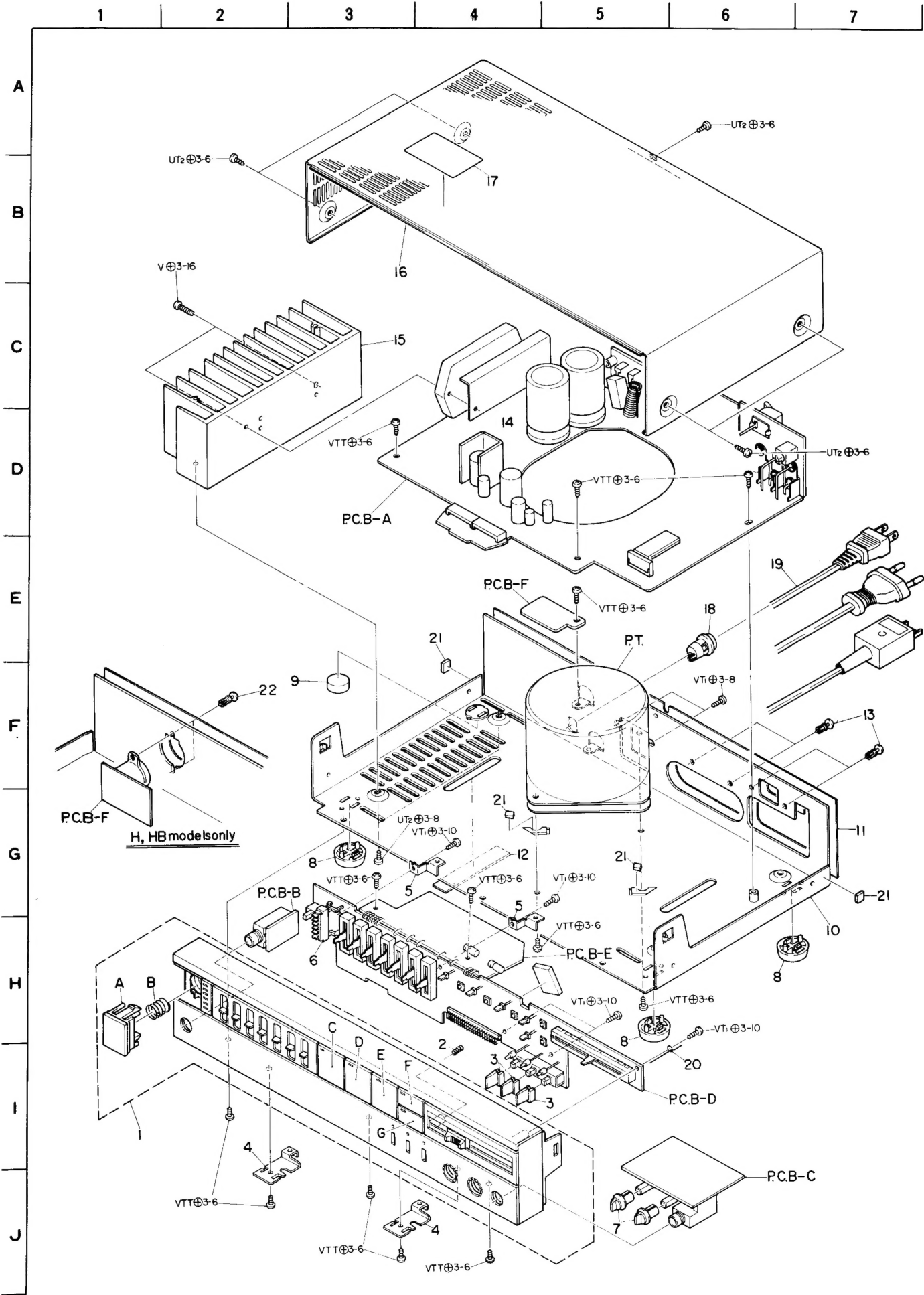
Measuring Point



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Handwriting practice lines consisting of 20 horizontal dotted lines.

EXPLODED VIEW (MX-90)



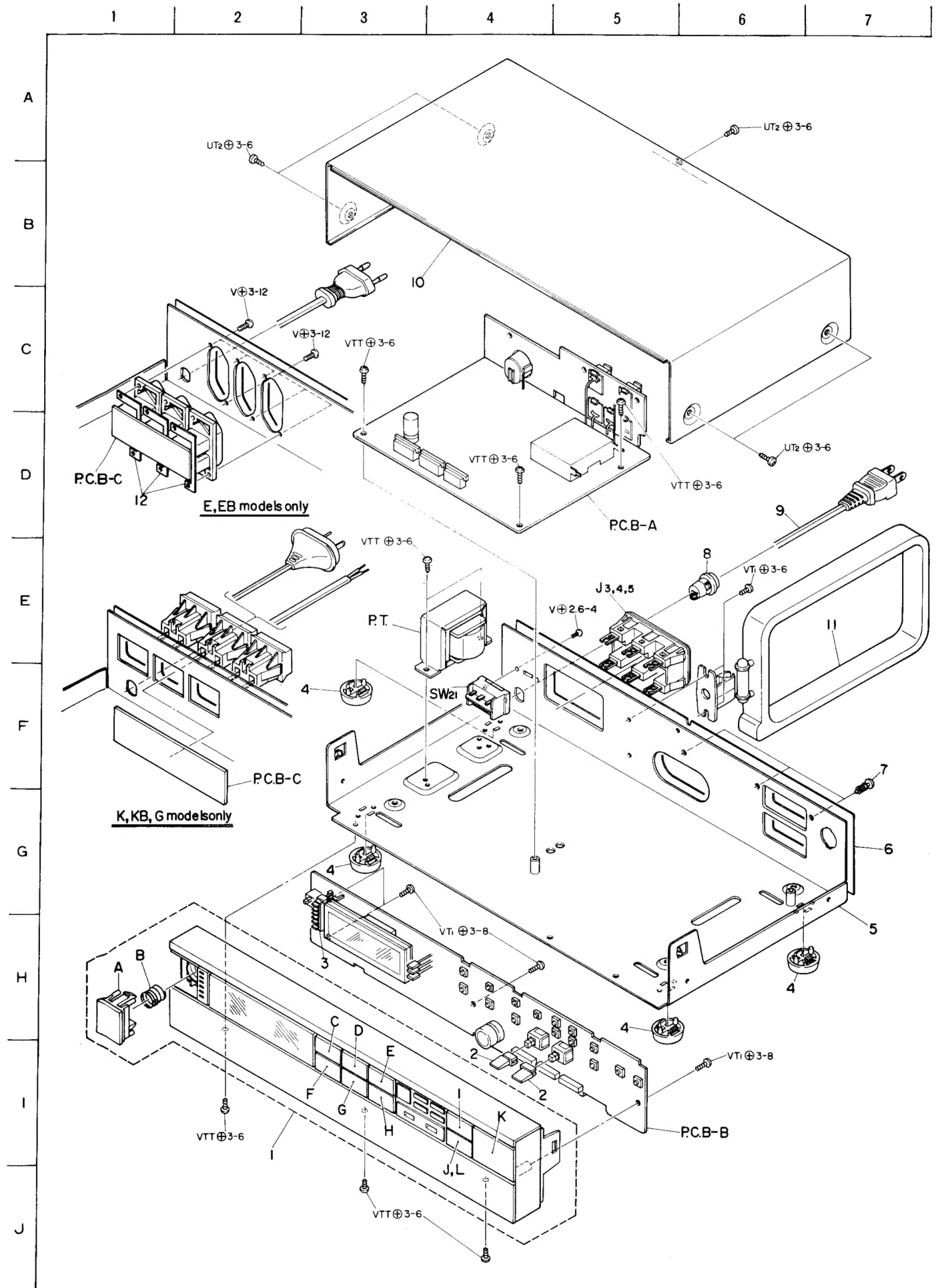
PARTS LIST

MECHNICAL PARTS (MX-90)

■※mark in this part list shows exclusive part.
■"★★★" shows unavailable Repair Part.

| Ref. No. | Part No. | Part No. changed to | Description | Common Model | Q'ty | Remark |
|----------|---------------|------------------------|--|-----------------|------|--------|
| 1 | 82-798-004-01 | | Front cabinet ass'y (H model only) | ※ | 1 | |
| | 82-798-046-01 | | Front cabinet ass'y (E, K, G models only) | ※ | 1 | |
| | 82-798-034-01 | | Front cabinet ass'y (HB, UB models only) | ※ | 1 | |
| | 82-798-072-01 | | Front cabinet ass'y (EB, KB models only) | ※ | 1 | |
| | A | 82-798-036-11 | POWER button ass'y (H, E, K, G models only) | ※ | 1 | |
| | | 82-798-062-01 | POWER button ass'y (HB, UB, EB, KB models only) | ※ | 1 | |
| | B | 82-798-209-01 | C-spring, POWER | ※ | 1 | |
| | C | 82-798-037-01 | Tape hinge ass'y (H, E, K, G models only) | ※ | 1 | |
| | | 82-798-057-01 | Tape hinge ass'y (HB, UB, EB, KB models only) | ※ | 1 | |
| | D | 82-798-040-01 | Tuner hinge ass'y (H, E, K, G models only) | ※ | 1 | |
| | | 82-798-060-01 | Tuner hinge ass'y (HB, UB, EB, KB models only) | ※ | 1 | |
| | E | 82-798-039-01 | PHONO hinge ass'y (H, E, K, G models only) | ※ | 1 | |
| | | 82-798-059-01 | PHONO hinge ass'y (HB, UB, EB, KB models only) | ※ | 1 | |
| | F | 82-798-041-01 | CD hinge ass'y (H, E, K, G models only) | ※ | 1 | |
| | | 82-798-061-01 | CD hinge ass'y (HB, UB, EB, KB models only) | ※ | 1 | |
| G | 82-798-038-01 | | AUX hinge ass'y (H, E, K, G models only) | ※ | 1 | |
| | 82-798-058-01 | | AUX hinge ass'y (HB, UB, EB, KB models only) | ※ | 1 | |
| 2 | 82-197-212-01 | | C-spring, Earth | FX-90 | 1 | |
| 3 | 82-798-023-11 | | Push-button, MUT | ※ | 3 | |
| 4 | 82-798-207-01 | | Holder, A | ※ | 2 | |
| 5 | 82-798-206-01 | | Holder, G | ※ | 2 | |
| 6 | 82-798-210-01 | | Guide B, LED | ※ | 1 | |
| 7 | 82-798-043-01 | | Knob L (H, E, K, G models only) | ※ | 2 | |
| | 82-798-070-01 | | Knob (HB, UB, EB, KB models only) | ※ | 2 | |
| 8 | 87-085-186-01 | | Foot | | 3 | |
| 9 | 82-798-024-01 | | Rubber foot | ※ | 1 | |
| 10 | 82-798-204-01 | | Amp. chassis ass'y (H, HB models only) | ※ | 1 | ★★★ |
| | 82-798-202-01 | | Amp. chassis ass'y (UB, E, EB, K, KB, G models only) | ※ | 1 | ★★★ |
| 11 | 82-798-026-01 | | Name plate, Jack (H model only) | ※ | 1 | ★★★ |
| | 82-798-066-01 | | Name plate, Jack (HB model only) | ※ | 1 | ★★★ |
| | 82-798-065-01 | | Name plate, Jack (UB model only) | ※ | 1 | ★★★ |
| | 82-798-029-01 | | Name plate, Jack (E model only) | ※ | 1 | ★★★ |
| | 82-798-067-01 | | Name plate, Jack (EB model only) | ※ | 1 | ★★★ |
| | 82-798-030-01 | | Name plate, Jack (K model only) | ※ | 1 | ★★★ |
| | 82-798-068-01 | | Name plate, Jack (KB model only) | ※ | 1 | ★★★ |
| | 82-798-031-01 | | Name plate, Jack (G model only) | ※ | 1 | ★★★ |
| 12 | 82-798-232-01 | | Sheet, 1C | ※ | 1 | ★★★ |
| 13 | 87-085-102-01 | | Nylon rivet 3.5-5.5 | | 4 | |
| 14 | 82-798-208-01 | | Holder, 1C | ※ | 1 | |
| 15 | 82-798-601-11 | | Heat sink, Main | ※ | 1 | ★★★ |
| 16 | 82-798-022-01 | | Cabinet, Steel (H, E, K, G models only) | ※ | 1 | |
| | 82-798-050-01 | | Cabinet, Steel (HB, UB, EB, KB models only) | ※ | 1 | |
| 17 | 87-057-642-01 | | Label, TEMP | MX-100 | 1 | ★★★ |
| 18 | 87-085-184-01 | | Cord bushing (H, HB, UB models only) | | 1 | |
| | 87-085-185-01 | | Cord bushing (E, EB, K, KB, G models only) | | 1 | |
| 19 | 87-034-962-01 | | AC power cord (H model only) | | 1 | |
| | 87-034-992-01 | | AC power cord (HB model only) | | 1 | |
| | 87-034-578-01 | | AC power cord (UB model only) | | 1 | |
| | 82-788-674-01 | | AC power cord (E, EB models only) | | 1 | |
| | 87-034-708-01 | | AC power cord (K, KB, G models only) | | 1 | |
| 20 | 82-798-212-01 | | T-spring, Earth | ※ | 1 | |
| 21 | 82-798-208-01 | | G cushion | SA-P50 | 4 | ★★★ |
| 22 | 87-085-090-01 | | Nylon rivet 3-6.5 (H, HB models only) | | 2 | |

EXPLODED VIEW (TX-110)

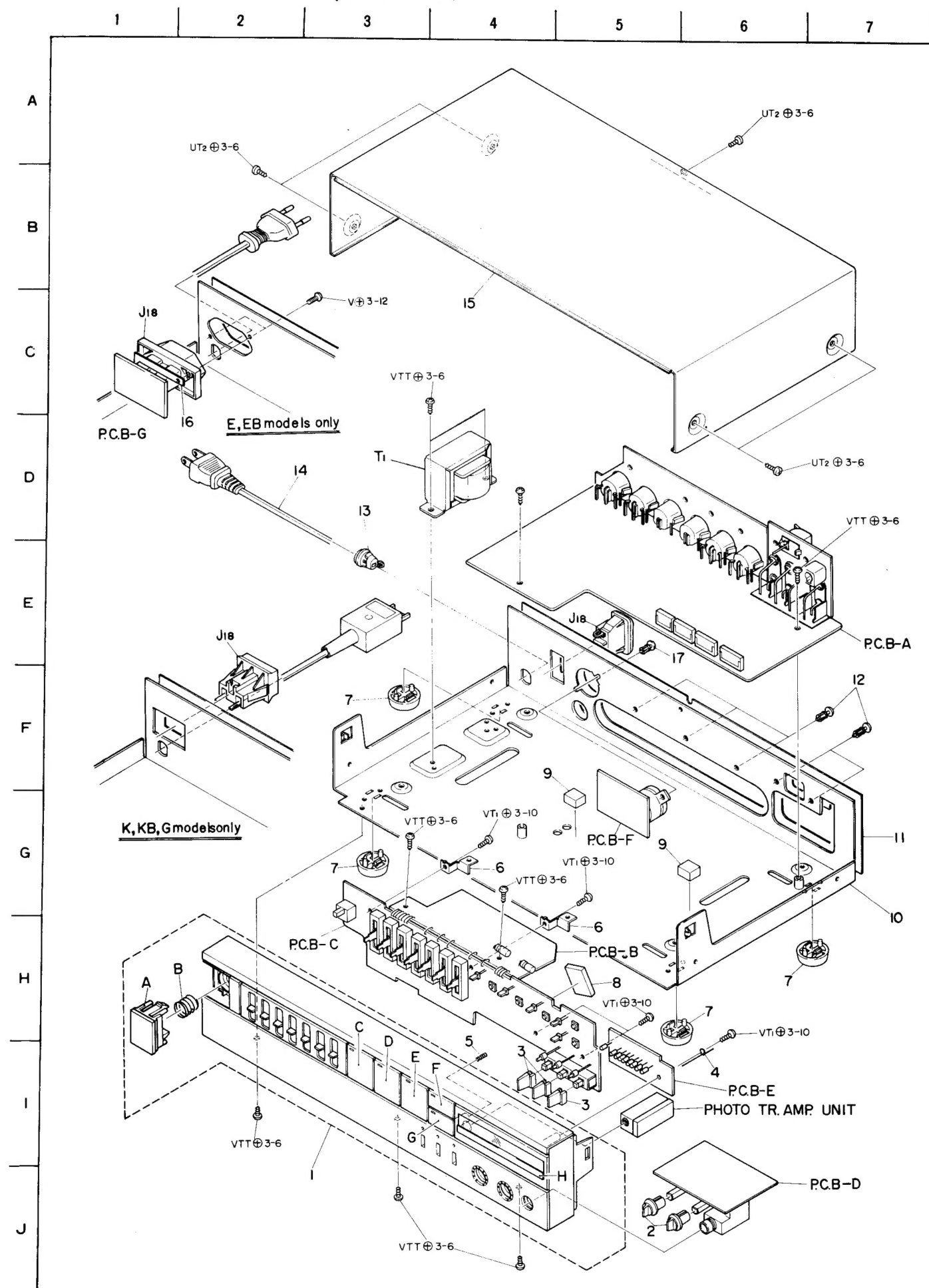


PARTS LIST

MECHNICAL PARTS (TX-110)

| Ref. No. | Part No. | Part No. changed to | Description | Common Model | Q'ty | Remark |
|----------|-----------------|------------------------|---|-----------------|------|--------|
| 1 | 82-799-004-11 | | Front cabinet ass'y (H model only) | ※ | 1 | |
| | 82-799-036-01 | | Front cabinet ass'y (HB, UB models only) | ※ | 1 | |
| | 82-799-005-11 | | Front cabinet ass'y (E, K, G models only) | ※ | 1 | |
| | 82-799-074-01 | | Front cabinet ass'y (EB, KB models only) | ※ | 1 | |
| | A 82-798-036-11 | | POWER button ass'y (H, E, K, G models only) | MX-90 | 1 | |
| | 82-798-062-01 | | POWER button ass'y (HB, UB, EB, KB models only) | MX-90 | 1 | |
| | B 82-798-209-01 | | C-spring, POWER | MX-90 | 1 | |
| | C 82-799-038-01 | | Hinge 1 ass'y (H, E, K, G models only) | ※ | 1 | |
| | 82-799-061-01 | | Hinge 1 ass'y (HB, UB, EB, KB models only) | ※ | 1 | |
| | D 82-799-039-01 | | Hinge 2 ass'y (H, E, K, G models only) | ※ | 1 | |
| | 82-799-062-01 | | Hinge 2 ass'y (HB, UB, EB, KB models only) | ※ | 1 | |
| | E 82-799-040-01 | | Hinge 3 ass'y (H, E, K, G models only) | ※ | 1 | |
| | 82-799-063-01 | | Hinge 3 ass'y (HB, UB, EB, KB models only) | ※ | 1 | |
| | F 82-799-041-01 | | Hinge 4 ass'y (H, E, K, G models only) | ※ | 1 | |
| | 82-799-064-01 | | Hinge 4 ass'y (HB, UB, EB, KB models only) | ※ | 1 | |
| | G 82-799-042-01 | | Hinge 5 ass'y (H, E, K, G models only) | ※ | 1 | |
| | 82-799-065-01 | | Hinge 5 ass'y (HB, UB, EB, KB models only) | ※ | 1 | |
| | H 82-799-043-01 | | Hinge 6 ass'y (H, E, K, G models only) | ※ | 1 | |
| | 82-799-066-01 | | Hinge 6 ass'y (HB, UB, EB, KB models only) | ※ | 1 | |
| | I 82-799-044-01 | | Hinge FM ass'y (H, E, K, G models only) | ※ | 1 | |
| | 82-799-067-01 | | Hinge FM ass'y (HB, UB, EB, KB models only) | ※ | 1 | |
| J | 82-799-045-01 | | Hinge AM ass'y (H model only) | ※ | 1 | |
| | 82-799-068-01 | | Hinge AM ass'y (HB, UB models only) | ※ | 1 | |
| | K 82-799-046-11 | | Hinge UP ass'y (H, E, K, G models only) | ※ | 1 | |
| | 82-799-070-01 | | Hinge UP ass'y (HB, UB, EB, KB models only) | ※ | 1 | |
| L | 82-799-050-01 | | Hinge MW ass'y (E, K, G models only) | ※ | 1 | |
| | 82-799-069-01 | | Hinge MW ass'y (EB, KB models only) | ※ | 1 | |
| 2 | 82-799-025-11 | | Push-button | ※ | 2 | |
| 3 | 82-798-210-01 | | Guide, LED | MX-90 | 1 | |
| 4 | 87-085-186-01 | | Foot | | 4 | |
| 5 | 82-799-204-01 | | Amp. chassis ass'y (H, HB models only) | ※ | 1 | ★ ★ ★ |
| | 82-799-202-01 | | Amp. chassis ass'y (UB model only) | ※ | 1 | ★ ★ ★ |
| | 82-799-206-01 | | Amp. chassis ass'y (E, EB models only) | ※ | 1 | ★ ★ ★ |
| | 82-799-212-01 | | Amp. chassis ass'y (K, KB models only) | ※ | 1 | ★ ★ ★ |
| | 82-799-208-01 | | Amp. chassis ass'y (G model only) | ※ | 1 | ★ ★ ★ |
| 6 | 82-799-028-01 | | Name plate, Jack (H model only) | ※ | 1 | ★ ★ ★ |
| | 82-799-081-01 | | Name plate, Jack (HB model only) | ※ | 1 | ★ ★ ★ |
| | 82-799-080-01 | | Name plate, Jack (UB model only) | ※ | 1 | ★ ★ ★ |
| | 82-799-031-01 | | Name plate, Jack (E model only) | ※ | 1 | ★ ★ ★ |
| | 82-799-082-01 | | Name plate, Jack (EB model only) | ※ | 1 | ★ ★ ★ |
| | 82-799-032-01 | | Name plate, Jack (K model only) | ※ | 1 | ★ ★ ★ |
| | 82-799-083-01 | | Name plate, Jack (KB model only) | ※ | 1 | ★ ★ ★ |
| | 82-799-033-01 | | Name plate, Jack (G model only) | ※ | 1 | ★ ★ ★ |
| 7 | 87-085-102-01 | | Nylon rivet 3.5-5.5 | | 3 | |
| 8 | 87-085-184-01 | | Cord bushing (H, HB, UB models only) | | 1 | |
| | 87-085-185-01 | | Cord bushing (E, EB, K, KB, G models only) | | 1 | |
| 9 | 87-034-956-01 | | AC power cord (H model only) | | 1 | |
| | 87-034-958-01 | | AC power cord (HB model only) | | 1 | |
| | 87-034-578-01 | | AC power cord (UB model only) | | 1 | |
| | 87-034-877-01 | | AC power cord (E, EB models only) | | 1 | |
| | 87-034-975-01 | | AC power cord (K, KB models only) | | 1 | |
| | 87-034-892-01 | | AC power cord (G model only) | | 1 | |
| 10 | 82-799-026-01 | | Cabinet, Steel (H, E, K, G models only) | ※ | 1 | |
| | 82-799-072-01 | | Cabinet, Steel (HB, UB, EB, KB models only) | ※ | 1 | |
| 11 | 82-791-652-01 | | Loop antenna ass'y (H, E, K, G models only) | TX-70 | 1 | |
| | 82-795-670-01 | | Loop antenna ass'y (HB, UB, EB, KB models only) | RX-30 | 1 | |
| 12 | 82-773-216-01 | | Plate nut (E, EB models only) | AT-9500 | 3 | |

EXPLODED VIEW (GX-110)

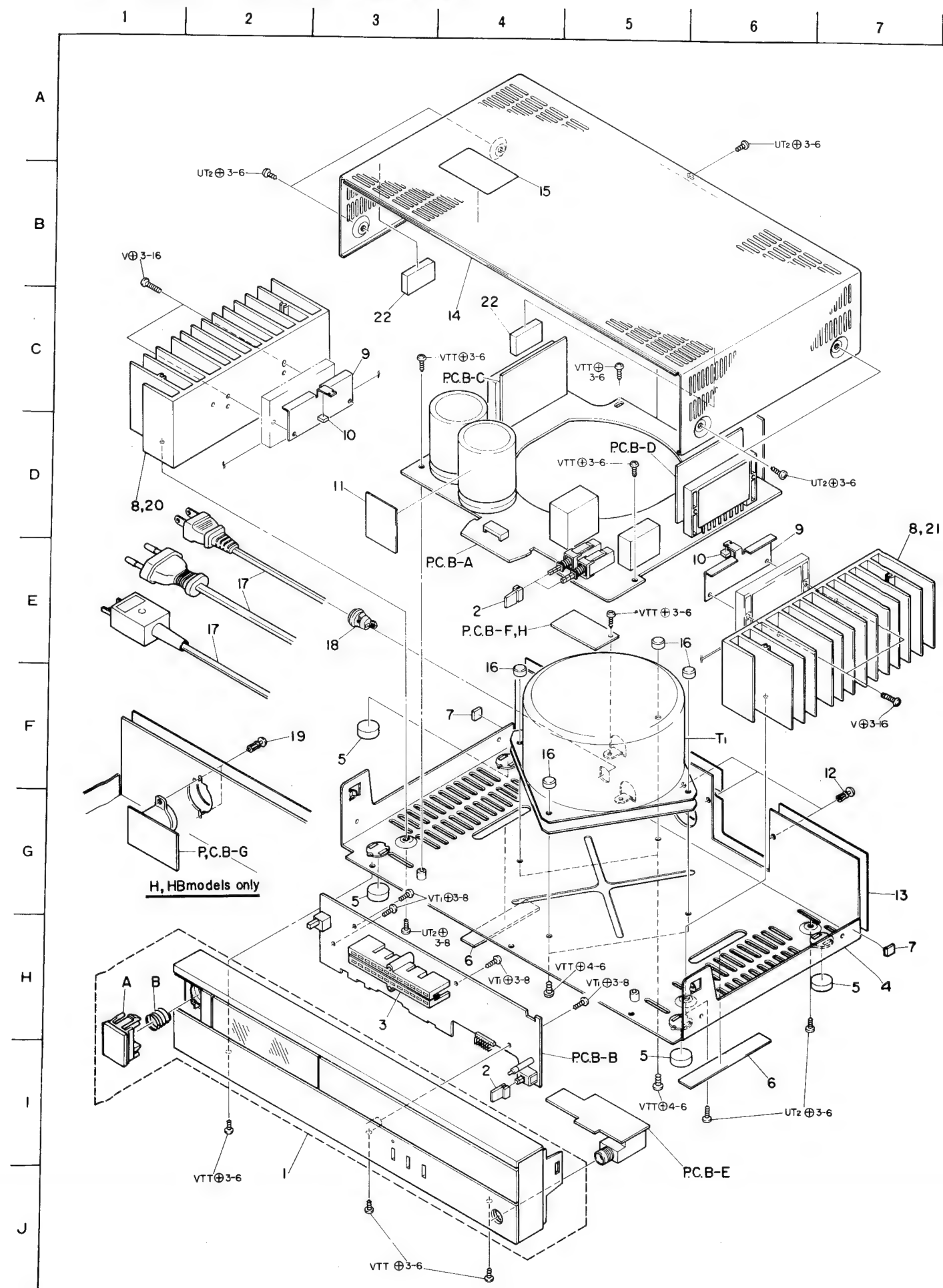


PARTS LIST

MECHNICAL PARTS (GX-110)

| Ref. No. | Part No. | Part No. changed to | Description | Common Model | Q'ty | Remark |
|----------|---------------|------------------------|--|-----------------|------|--------|
| 1 | 81-731-002-01 | | Front cabinet ass'y (H, E, K, G models only) | ※ | 1 | |
| | 81-731-004-01 | | Front cabinet ass'y (HB, UB, EB, KB models only) | ※ | 1 | |
| A | 82-798-036-11 | | POWER button ass'y (H, E, K, G models only) | MX-90 | 1 | |
| | 82-798-062-01 | | POWER button ass'y (HB, UB, EB, KB models only) | MX-90 | 1 | |
| B | 82-798-209-01 | | C-spring, POWER | MX-90 | 1 | |
| C | 82-798-037-01 | | TAPE hinge ass'y (H, E, K, G models only) | MX-90 | 1 | |
| | 82-798-057-01 | | TAPE hinge ass'y (HB, UB, EB, KB models only) | MX-90 | 1 | |
| D | 82-798-040-01 | | TUNER hinge ass'y (H, E, K, G models only) | MX-90 | 1 | |
| | 82-798-060-01 | | TUNER hinge ass'y (HB, UB, EB, KB models only) | MX-90 | 1 | |
| E | 82-798-039-01 | | PHONO hinge ass'y (H, E, K, G models only) | MX-90 | 1 | |
| | 82-798-059-01 | | PHONO hinge ass'y (HB, UB, EB, KB models only) | MX-90 | 1 | |
| F | 82-798-041-01 | | CD hinge ass'y (H, E, K, G models only) | MX-90 | 1 | |
| | 82-798-061-01 | | CD hinge ass'y (HB, UB, EB, KB models only) | MX-90 | 1 | |
| G | 82-798-038-01 | | AUX hinge ass'y (H, E, K, G models only) | MX-90 | 1 | |
| | 82-798-058-01 | | AUX hinge ass'y (HB, UB, EB, KB models only) | MX-90 | 1 | |
| H | 81-731-019-01 | | Push-key, VR (H, E, K, G models only) | ※ | 1 | |
| | 81-731-024-01 | | Push-key, VR (HB, UB, EB, KB models only) | ※ | 1 | |
| 2 | 82-798-043-01 | | Knob (H, E, K, G models only) | MX-90 | 2 | |
| | 82-798-070-01 | | Knob (HB, UB, EB, KB models only) | MX-90 | 2 | |
| 3 | 82-798-023-11 | | Push-button, MUT | MX-90 | 3 | |
| 4 | 82-798-212-01 | | T-spring, Earth | MX-90 | 1 | |
| 5 | 82-197-212-01 | | C-spring, Earth | FX-90 | 1 | |
| 6 | 82-798-206-01 | | Holder G | MX-90 | 2 | |
| 7 | 87-085-186-01 | | Foot | | 4 | |
| 8 | 87-063-116-01 | | Cushion 30-15 | | 1 | ★ ★ ★ |
| 9 | 82-157-226-01 | | G cushion, Main | SD-L50 | 2 | ★ ★ ★ |
| 10 | 81-731-206-01 | | Amp. chassis ass'y (H, HB models only) | ※ | 1 | ★ ★ ★ |
| | 81-731-210-01 | | Amp. chassis ass'y (UB model only) | ※ | 1 | ★ ★ ★ |
| | 81-731-204-01 | | Amp. chassis ass'y (E, EB models only) | ※ | 1 | ★ ★ ★ |
| | 81-731-216-01 | | Amp. chassis ass'y (K, KB, G models only) | ※ | 1 | ★ ★ ★ |
| 11 | 81-731-015-01 | | Name plate, Jack (H model only) | ※ | 1 | ★ ★ ★ |
| | 81-731-026-01 | | Name plate, Jack (HB model only) | ※ | 1 | ★ ★ ★ |
| | 81-731-025-01 | | Name plate, Jack (UB model only) | ※ | 1 | ★ ★ ★ |
| | 81-731-012-01 | | Name plate, Jack (E model only) | ※ | 1 | ★ ★ ★ |
| | 81-731-027-01 | | Name plate, Jack (EB model only) | ※ | 1 | ★ ★ ★ |
| | 81-731-013-01 | | Name plate, Jack (K model only) | ※ | 1 | ★ ★ ★ |
| | 81-731-028-01 | | Name plate, Jack (KB model only) | ※ | 1 | ★ ★ ★ |
| | 81-731-014-01 | | Name plate, Jack (G model only) | ※ | 1 | ★ ★ ★ |
| 12 | 87-085-102-01 | | Nylon rivet 3.5-5.5 | | 5 | |
| 13 | 87-085-184-01 | | Cord bushing (H, HB, UB models only) | | 1 | |
| | 87-085-185-01 | | Cord bushing (E, EB, K, KB, G models only) | | 1 | |
| 14 | 87-034-962-01 | | AC power cord (H model only) | | 1 | |
| | 87-034-992-01 | | AC power cord (HB model only) | | 1 | |
| | 87-034-578-01 | | AC power cord (UB model only) | | 1 | |
| | 82-788-674-01 | | AC power cord (E, EB models only) | MX-100 | 1 | |
| | 87-034-708-01 | | AC power cord (K, KB, G models only) | | 1 | |
| | | | | | | |
| 15 | 82-799-026-01 | | Cabinet, Steel (H, E, K, G models only) | TX-110 | 1 | |
| | 82-799-072-01 | | Cabinet, Steel (HB, UB, EB, KB models only) | TX-110 | 1 | |
| 16 | 82-773-216-01 | | Plate nut (E, EB models only) | AT-9500 | 1 | |
| 17 | 87-085-090-01 | | Nylon rivet 3-6.5 (H, HB models only) | | 2 | |

EXPLODED VIEW (BX-110)



PARTS LIST

MECHANICAL PARTS

| Ref. No. | Part No. | Part No. changed to | Description | Common Model | Q'ty | Remark |
|----------|------------------|------------------------|--|-----------------|------|--------|
| 1 | 81-730-004-11 | | Front Cabinet ass'y (H, E, K, G models only) | ※ | 1 | |
| | 81-730-031-01 | | Front Cabinet ass'y (HB, UB, EB, KB models only) | ※ | 1 | |
| | A 82-798-036-11 | | POWER button ass'y (H, E, K, G models only) | MX-90 | 1 | |
| | 82-798-062-01 | | POWER button ass'y (HB, UB, EB, KB models only) | MX-90 | 1 | |
| | B 82-798-209-01 | | C-spring, POWER | MX-90 | 1 | |
| | | | | | | |
| 2 | 82-798-023-11 | | Push-button, MUT | MX-90 | 3 | |
| 3 | 81-730-206-01 | | Guide, LED | ※ | 2 | ★ ★ ★ |
| 4 | 81-730-204-01 | | Amp. chassis ass'y (H, HB models only) | ※ | 1 | ★ ★ ★ |
| | 81-730-202-01 | | Amp. chassis ass'y (UB, E, EB, K, KB, G models only) | ※ | 1 | ★ ★ ★ |
| 5 | 82-798-024-01 | | Rubber foot | MX-90 | 4 | |
| 6 | 82-798-232-01 | | Sheet, IC | MX-90 | 2 | ★ ★ ★ |
| 7 | 82-749-208-01 | | G cushion | SA-P50 | 2 | ★ ★ ★ |
| 8 | 82-798-601-11 | | Heat sink, Main (H, HB, UB models only) | MX-90 | 2 | ★ ★ ★ |
| 9 | 82-781-206-01 | | Plate nut | SA-P80 | 2 | |
| 10 | 81-730-209-01 | | G cushion 6-6-3 | ※ | 2 | ★ ★ ★ |
| 11 | 81-730-208-11 | | Sheet 30-36-0.1 | ※ | 1 | ★ ★ ★ |
| 12 | 87-085-102-01 | | Nylon rivet 3.5-5.5 | | 3 | |
| 13 | 81-730-013-01 | | Name plate, Jack (H model only) | ※ | 1 | ★ ★ ★ |
| | 81-730-027-01 | | Name plate, Jack (HB model only) | ※ | 1 | ★ ★ ★ |
| | 81-730-026-01 | | Name plate, Jack (UB model only) | ※ | 1 | ★ ★ ★ |
| | 81-730-014-01 | | Name plate, Jack (E model only) | ※ | 1 | ★ ★ ★ |
| | 81-730-028-01 | | Name plate, Jack (EB model only) | ※ | 1 | ★ ★ ★ |
| | 81-730-015-01 | | Name plate, Jack (K model only) | ※ | 1 | ★ ★ ★ |
| | 81-730-029-01 | | Name plate, Jack (KB model only) | ※ | 1 | ★ ★ ★ |
| | 81-730-016-01 | | Name plate, Jack (G model only) | ※ | 1 | ★ ★ ★ |
| | 14 81-730-010-01 | | Cabinet, Steel (H, E, K, G models only) | ※ | 1 | |
| | 81-730-025-01 | | Cabinet, Steel (HB, UB, EB, KB models only) | ※ | 1 | |
| 15 | 87-057-642-01 | | Label, TEMP (H, HB, UB models only) | | 1 | ★ ★ ★ |
| | 87-057-712-01 | | Label, TEMP (E, EB, K, KB, G models only) | | 1 | ★ ★ ★ |
| 16 | 82-752-206-01 | | Cover, Nut | SA-P50 | 4 | ★ ★ ★ |
| 17 | 87-034-962-01 | | AC power cord (H model only) | | 1 | |
| | 87-034-992-01 | | AC power cord (HB model only) | | 1 | |
| | 87-034-578-01 | | AC power cord (UB model only) | | 1 | |
| | 82-788-674-01 | | AC power cord (E, EB models only) | MX-100 | 1 | |
| | 87-034-708-01 | | AC power cord (K, KB, G models only) | | 1 | |
| 18 | 87-085-184-01 | | Cord bushing (H, HB, UB models only) | | 1 | |
| | 87-085-185-01 | | Cord bushing (E, EB, K, KB, G models only) | | 1 | |
| 19 | 87-085-090-01 | | Nylon rivet (H, HB models only) | | 2 | |
| 20 | 81-730-624-01 | | Heat sink L (E, EB, K, KB, G models only) | ※ | 1 | ★ ★ ★ |
| 21 | 81-730-625-01 | | Heat sink R (E, EB, K, KB, G models only) | ※ | 1 | ★ ★ ★ |
| 22 | 81-730-211-01 | | G cushion | ※ | 2 | ★ ★ ★ |

| Part No. | Description |
|---------------|-------------------------|
| 87-261-071-21 | V + 2 . 6 - 4 |
| 87-261-097-21 | V + 3 - 1 2 |
| 87-355-094-21 | VT ₁ + 3 - 6 |
| 87-350-095-01 | VT ₁ + 3 - 8 |
| 87-081-511-01 | VT T + 3 - 6 |
| 87-340-094-01 | UT ₂ + 3 - 6 |

| Part No. | Description |
|---------------|---------------------------|
| 87-261-100-21 | V + 3 - 1 6 |
| 87-350-095-01 | VT ₁ + 3 - 8 |
| 87-351-096-21 | VT ₁ + 3 - 1 0 |
| 87-081-511-01 | VT T + 3 - 6 |
| 87-340-094-01 | UT ₂ + 3 - 6 |
| 87-343-095-21 | UT ₂ + 3 - 8 |

| Part No. | Description |
|---------------|---------------------------|
| 87-268-097-11 | V + 3 - 1 2 |
| 87-351-096-21 | VT ₁ + 3 - 1 0 |
| 87-081-511-01 | VT T + 3 - 6 |
| 87-340-094-01 | UT ₂ + 3 - 6 |

| Part No. | Description |
|---------------|-------------------------|
| 87-261-100-21 | V + 3 - 1 6 |
| 87-350-095-01 | VT ₁ + 3 - 8 |
| 87-081-511-01 | VT T + 3 - 6 |
| 87-081-931-01 | VT T + 4 - 6 |
| 87-340-094-01 | UT ₂ + 3 - 6 |
| 87-343-095-21 | UT ₂ + 3 - 8 |

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ACCESSORIES/PACKAGE LIST

MX-90

| Ref. No. | Part No. | Part No. changed to | Description | Common Model | Q'ty | Remark |
|----------|---------------|------------------------|---|-----------------|------|--------|
| 1 | 82-798-853-01 | | Printed indiv., Packing | ※ | 1 | ★ ★ ★ |
| 2 | 81-730-852-11 | | Cushion L. Printed indiv. | | 1 | ★ ★ ★ |
| 3 | 81-730-853-21 | | Cushion R. Printed indiv. | | 1 | ★ ★ ★ |
| 4 | 87-056-610-01 | | Poly-vinyl sack (for case) | | 1 | ★ ★ ★ |
| 5 | 82-798-854-01 | | Carton, Outer (H, HB, E, EB, K, KB, G models only) | ※ | 1/4 | ★ ★ ★ |
| 6 | 82-798-855-01 | | Carton, Outer (UB model only) | ※ | 1/2 | ★ ★ ★ |
| 7 | 87-056-651-01 | | Color label, Black (HB, UB, EB, KB models only) | | 1 | ★ ★ ★ |
| 8 | 82-798-904-01 | | Instructions booklet | ※ | 1 | |
| 9 | 87-056-009-51 | | Distributors list (H, HB, E, EB, K, KB, G models only) | | 1 | ★ ★ ★ |
| 10 | 87-051-171-11 | | Poly-vinyl sack (for instruction) | | 1 | ★ ★ ★ |
| 11 | 87-056-059-01 | | Guarantee card (G model only) | | 1 | ★ ★ ★ |
| 12 | 87-056-045-01 | | Guarantee card (UB model only) | | 1 | ★ ★ ★ |
| 13 | 87-056-050-01 | | Safety instruction (UB model only) | | 1 | ★ ★ ★ |
| 14 | 87-056-008-11 | | Label, AC power cord (K, KB models only) | | 1 | |
| 15 | 87-056-084-01 | | Limited, Warranty (UB model only) | | 1 | |

TX-110




| Ref. No. | Part No. | Part No. changed to | Description | Common Model | Q'ty | Remark |
|----------|---------------|------------------------|---|-----------------|------|--------|
| 1 | 82-799-855-01 | | Printed indiv., Packing | ※ | 1 | ★ ★ ★ |
| 2 | 82-799-852-01 | | Cushion L. Printed indiv. | ※ | 1 | ★ ★ ★ |
| 3 | 82-799-853-11 | | Cushion R. Printed indiv. | ※ | 1 | ★ ★ ★ |
| 4 | 82-799-856-01 | | Carton, Outer (H, HB, E, EB, K, KB, G models only) | ※ | 1/4 | ★ ★ ★ |
| 5 | 82-799-857-01 | | Carton, Outer (UB model only) | ※ | 1/2 | ★ ★ ★ |
| 6 | 87-056-610-01 | | Poly-vinyl sack (for case) | | 1 | ★ ★ ★ |
| 7 | 87-056-651-01 | | Color label, Black (HB, UB, EB, KB models only) | | 1 | ★ ★ ★ |
| 8 | 82-799-904-01 | | Instruction booklet | ※ | 1 | |
| 9 | 87-051-171-11 | | Poly-vinyl sack (for instruction) | | 1 | ★ ★ ★ |
| 10 | 87-056-009-51 | | Distributors list (H, HB, E, EB, K, KB, G models only) | | 1 | ★ ★ ★ |
| 11 | 87-056-059-01 | | Guarantee card (G model only) | | 1 | ★ ★ ★ |
| 12 | 87-056-045-01 | | Guarantee card (UB model only) | | 1 | ★ ★ ★ |
| 13 | 87-056-008-11 | | Label, AC power cord (K, KB models only) | | 1 | ★ ★ ★ |
| 14 | 87-056-050-01 | | Safety instruction (UB model only) | | 1 | ★ ★ ★ |
| 15 | 87-056-084-01 | | Limited, Warranty (UB model only) | | 1 | ★ ★ ★ |
| 16 | 82-791-652-01 | | Loop antenna ass'y (H, E, K, G models only) | TX-70 | 1 | |
| 17 | 82-795-670-01 | | Loop antenna ass'y (HB, UB, EB, KB models only) | | 1 | |
| 18 | 87-032-845-01 | | Siemens plug (H, HB models only) | | 1 | |
| 19 | 87-043-065-01 | | FM feeder antenna | | 1 | |
| 20 | 87-034-968-01 | | Connection cord CW-255GSK | | 1 | |

GX-110

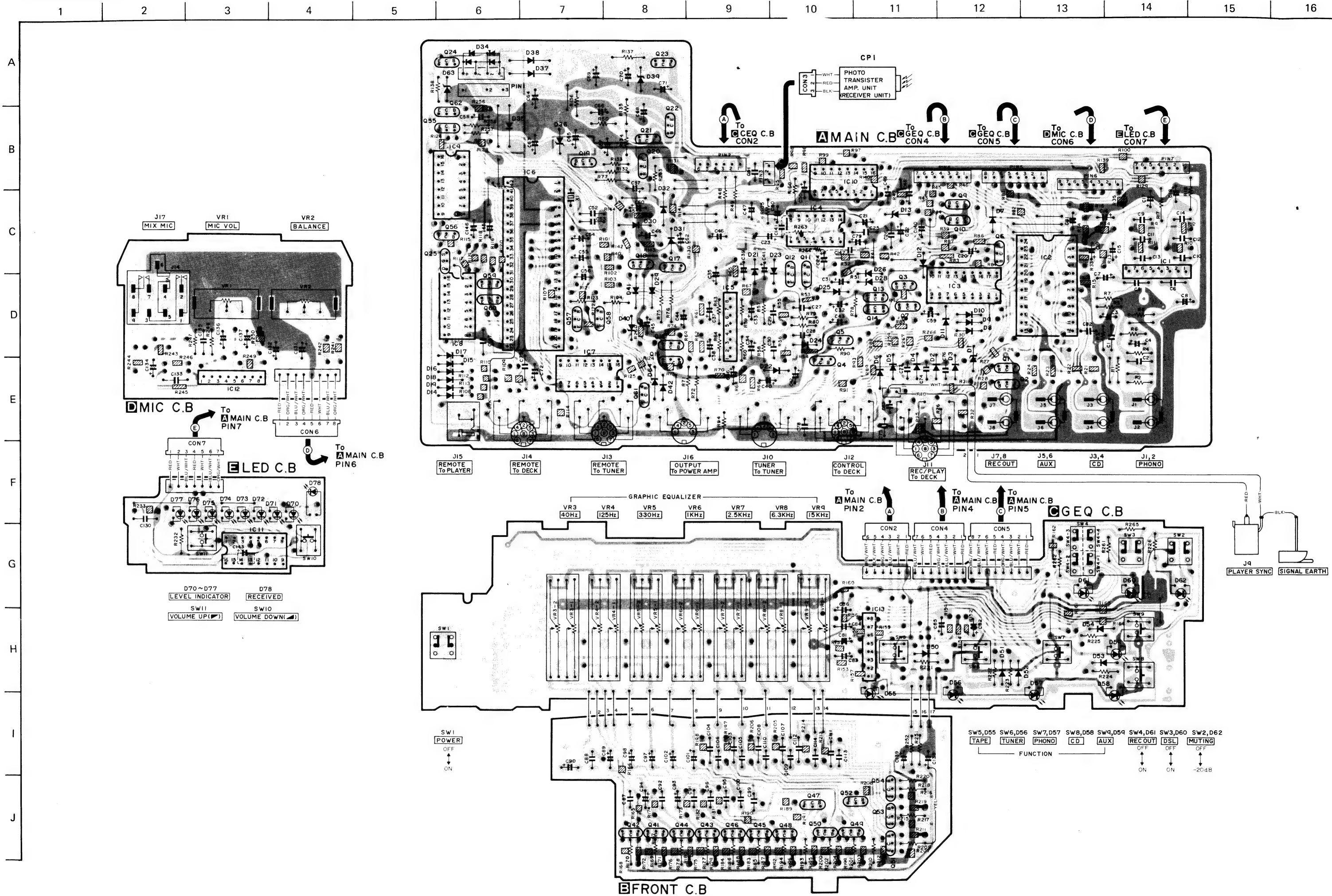
| Ref. No. | Part No. | Part No. changed to | Description | Common Model | Q'ty | Remark |
|----------|---------------|------------------------|---|-----------------|------|--------|
| 1 | 81-731-853-01 | | Printed indiv., Packing | ※ | 1 | ★ ★ ★ |
| 2 | 82-799-852-01 | | Cushion L. Printed indiv. | TX-110 | 1 | ★ ★ ★ |
| 3 | 82-799-853-11 | | Cushion R. Printed indiv. | TX-110 | 1 | ★ ★ ★ |
| 4 | 81-731-854-01 | | Carton, Outer (H, HB, E, EB, K, KB, G models only) | ※ | 1/4 | ★ ★ ★ |
| 5 | 81-731-855-01 | | Carton, Outer (UB model only) | ※ | 1/2 | ★ ★ ★ |
| 6 | 81-731-856-01 | | Sleeve, Corrugated board | ※ | 1 | ★ ★ ★ |
| 7 | 85-263-854-01 | | Bag, Air-cap (for remote control) | | 1 | ★ ★ ★ |
| 8 | 87-056-610-01 | | Poly-vinyl sack (for case) | | 1 | ★ ★ ★ |
| 9 | 87-056-651-01 | | Color label, Black (HB, UB, EB, KB models only) | | 1 | ★ ★ ★ |
| 10 | 81-731-904-01 | | Instructions booklet | ※ | 1 | |
| 11 | 87-051-171-11 | | Poly-vinyl sack (for instruction) | | 1 | ★ ★ ★ |
| 12 | 87-056-009-51 | | Distributors list (H, HB, E, EB, K, KB, G models only) | | 1 | ★ ★ ★ |
| 13 | 87-056-050-01 | | Safety instruction (UB model only) | | 1 | ★ ★ ★ |
| 14 | 87-056-084-01 | | Limited, Warranty (UB model only) | | 1 | ★ ★ ★ |
| 15 | 87-056-059-01 | | Guarantee card (G model only) | | 1 | ★ ★ ★ |
| 16 | 87-056-045-01 | | Guarantee card (UB model only) | | 1 | ★ ★ ★ |
| 17 | 81-731-638-01 | | Remote control T-110 (H, K, G models only) | ※ | 1 | |
| 18 | 81-731-653-01 | | Remote control T-110 Black (HB, UB, KB models only) | ※ | 1 | |
| 19 | 81-731-654-01 | | Remote control T-110A Black (EB model only) | ※ | 1 | |
| 20 | 81-731-639-01 | | Remote control T-110A (E model only) | ※ | 1 | |
| 21 | 85-439-002-01 | | Syncrate cord, CW-150K | | 1 | |
| | 87-056-008-11 | | Label, AC power cord (K, KB models only) | | | ★ ★ ★ |

| Ref. No. | Part No. | Part No. changed to | Description | Common Model | Q'ty | Remark |
|----------|---------------|------------------------|---|-----------------|------|--------|
| 1 | 81-730-855-01 | | Printed indiv., Packing | ※ | 1 | ★ ★ ★ |
| 2 | 81-730-852-11 | | Cushion L. Printed indiv. | ※ | 1 | ★ ★ ★ |
| 3 | 81-730-853-21 | | Cushion R. Printed indiv. | ※ | 1 | ★ ★ ★ |
| 4 | 81-730-856-01 | | Carton, Outer (H, HB, E, EB, K, KB, G models only) | ※ | 1/4 | ★ ★ ★ |
| 5 | 81-730-857-01 | | Carton, Outer (UB model only) | ※ | 1/2 | ★ ★ ★ |
| 6 | 81-730-858-01 | | Auxiliary cushion | ※ | 1 | ★ ★ ★ |
| 7 | 87-056-610-01 | | Poly-vinyl sack (for case) | | 1 | ★ ★ ★ |
| 8 | 87-056-651-01 | | Color label Black (HB, UB, EB, KB models only) | | 1 | ★ ★ ★ |
| 9 | 81-730-904-01 | | Instructions booklet | ※ | 1 | |
| 10 | 87-051-171-11 | | Poly-vinyl sack (for instruction) | | 1 | ★ ★ ★ |
| 11 | 87-056-009-51 | | Distributors list (H, HB, E, EB, K, KB, G models only) | | 1 | ★ ★ ★ |
| 12 | 87-056-059-01 | | Guarantee card (G model only) | | 1 | ★ ★ ★ |
| 13 | 87-056-045-01 | | Guarantee card (UB model only) | | 1 | ★ ★ ★ |
| 14 | 87-056-084-01 | | Limited, Warranty (UB model only) | | 1 | ★ ★ ★ |
| 15 | 87-056-074-01 | | Poly-vinyl sack (for guarantee card) | | 1 | ★ ★ ★ |
| 16 | 87-056-008-11 | | Label, AC power cord (K, KB models only) | | 1 | ★ ★ ★ |
| 17 | 87-056-050-01 | | Safety instruction (UB model only) | | 1 | ★ ★ ★ |
| 18 | 87-034-968-01 | | Connection cord CW-255GSK | | 1 | |

AIWA Co., Ltd. Tokyo Japan

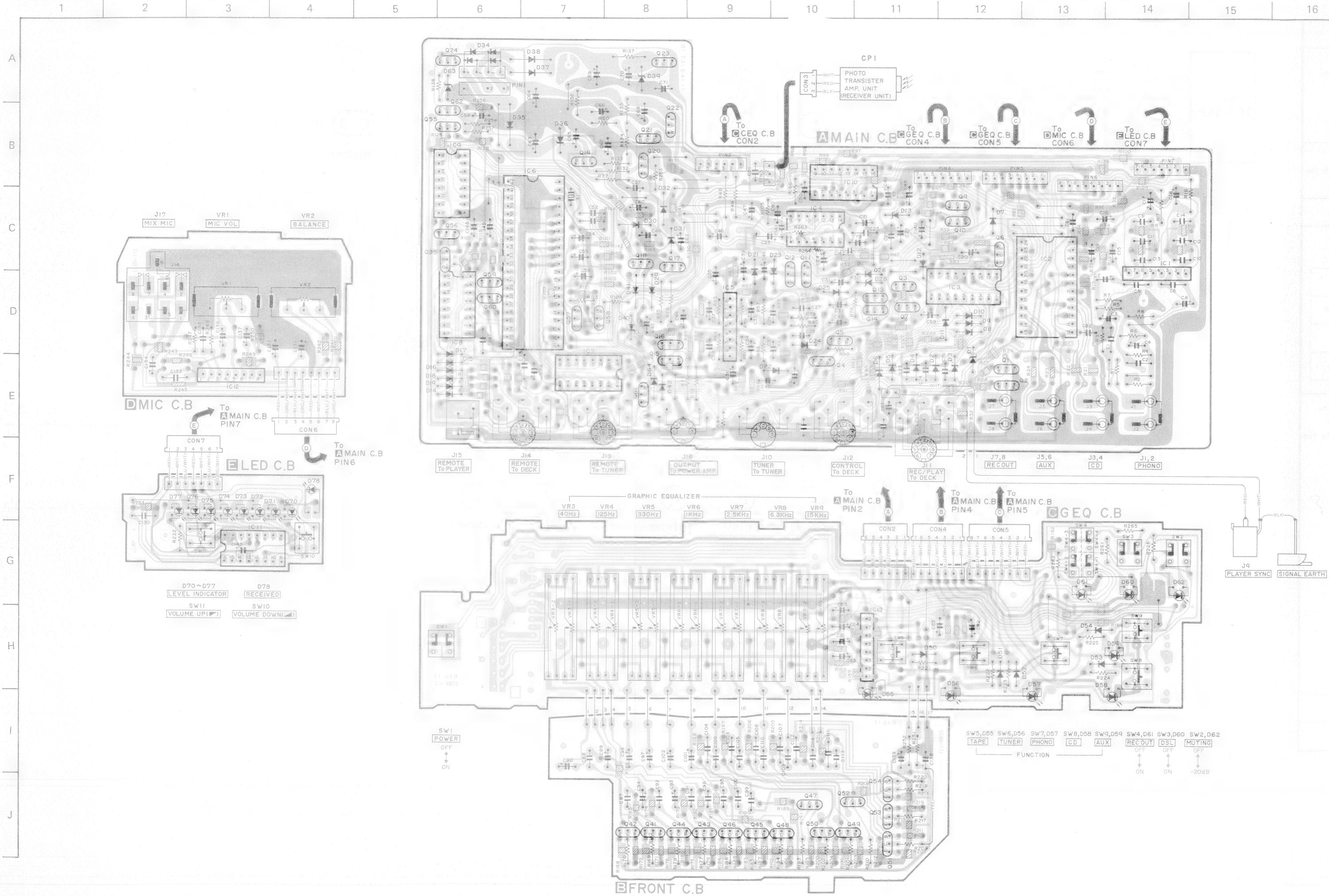
- NOTES (1)  Earth pattern  Printed resistor pattern  Others pattern
- (2) The voltage is the reference value measured with a tester (20 K ohms/V DC) when there are no signals.
An asterisk (*) indicates that the value was measured with a vacuum-tube voltmeter during recording.

WIRING (GX-110)

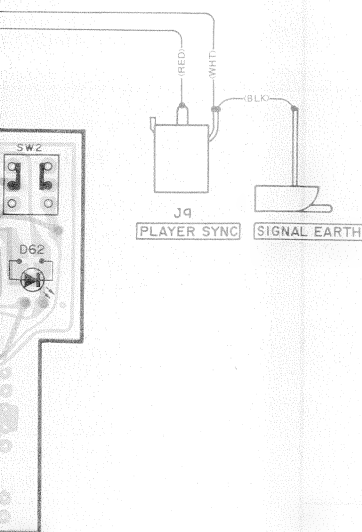
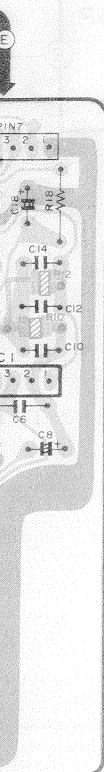


- NOTES (1)  Earth pattern  Printed resistor pattern  Others pattern
- (2) The voltage is the reference value measured with a tester (20 K ohms/V DC) when there are no signals.
An asterisk (*) indicates that the value was measured with a vacuum-tube voltmeter during recording.

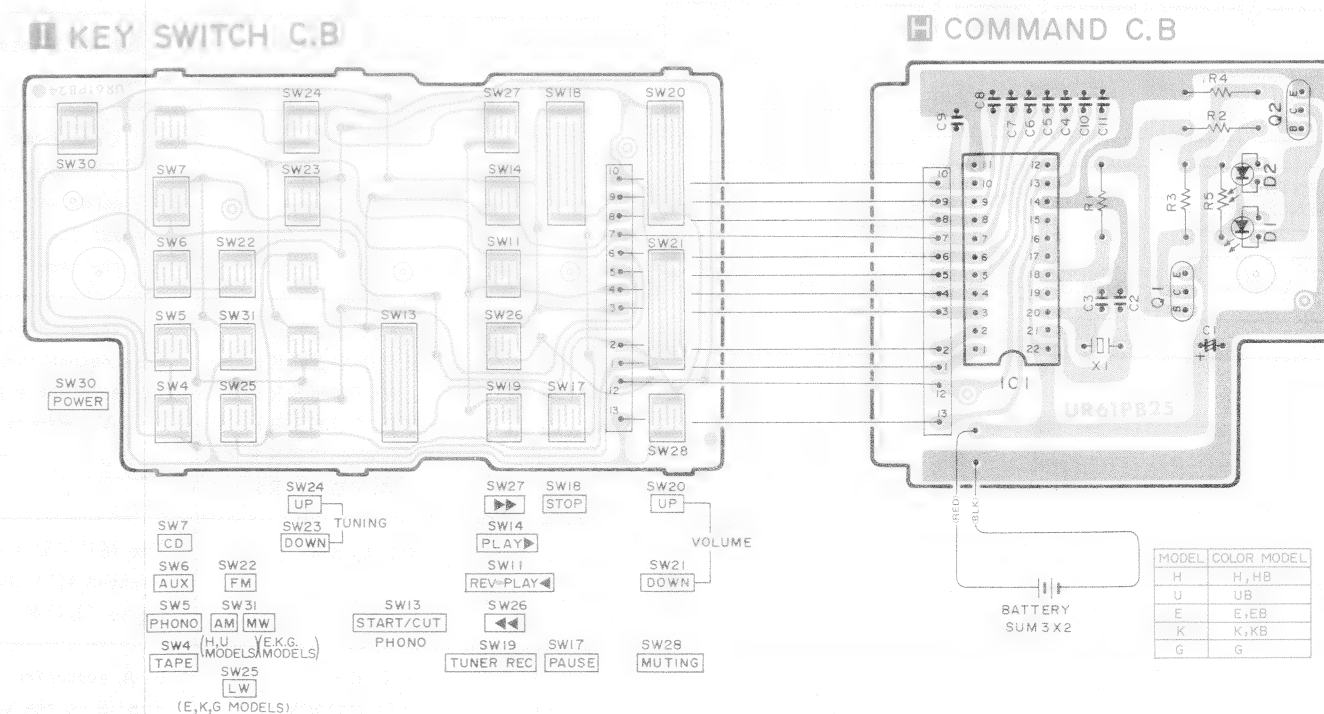
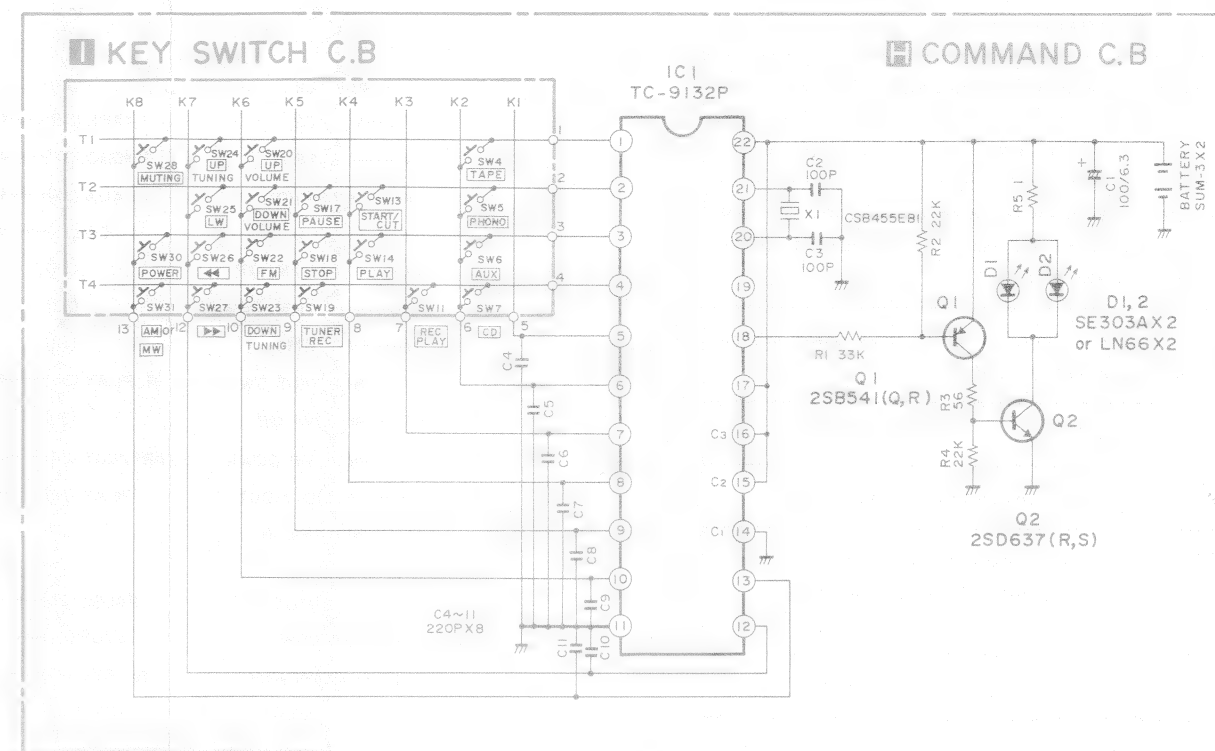
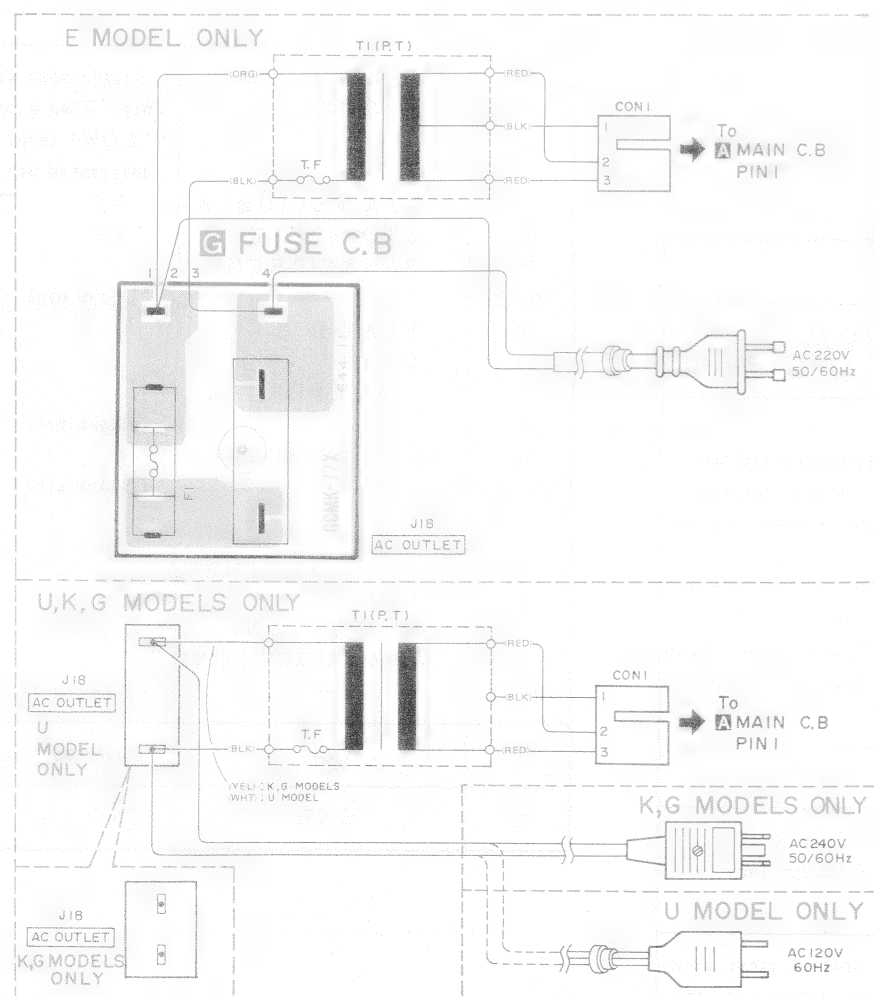
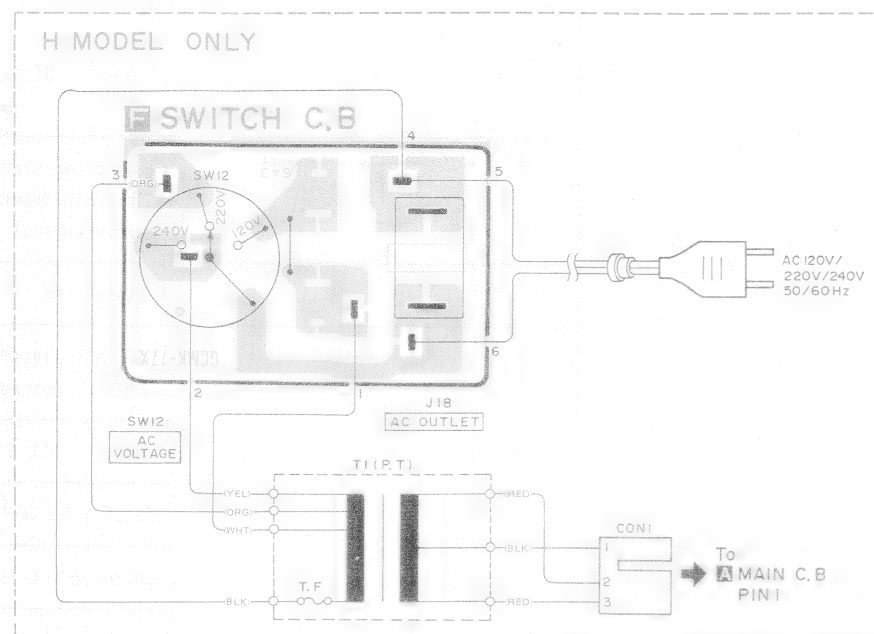
WIRING (GX-110)



15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30

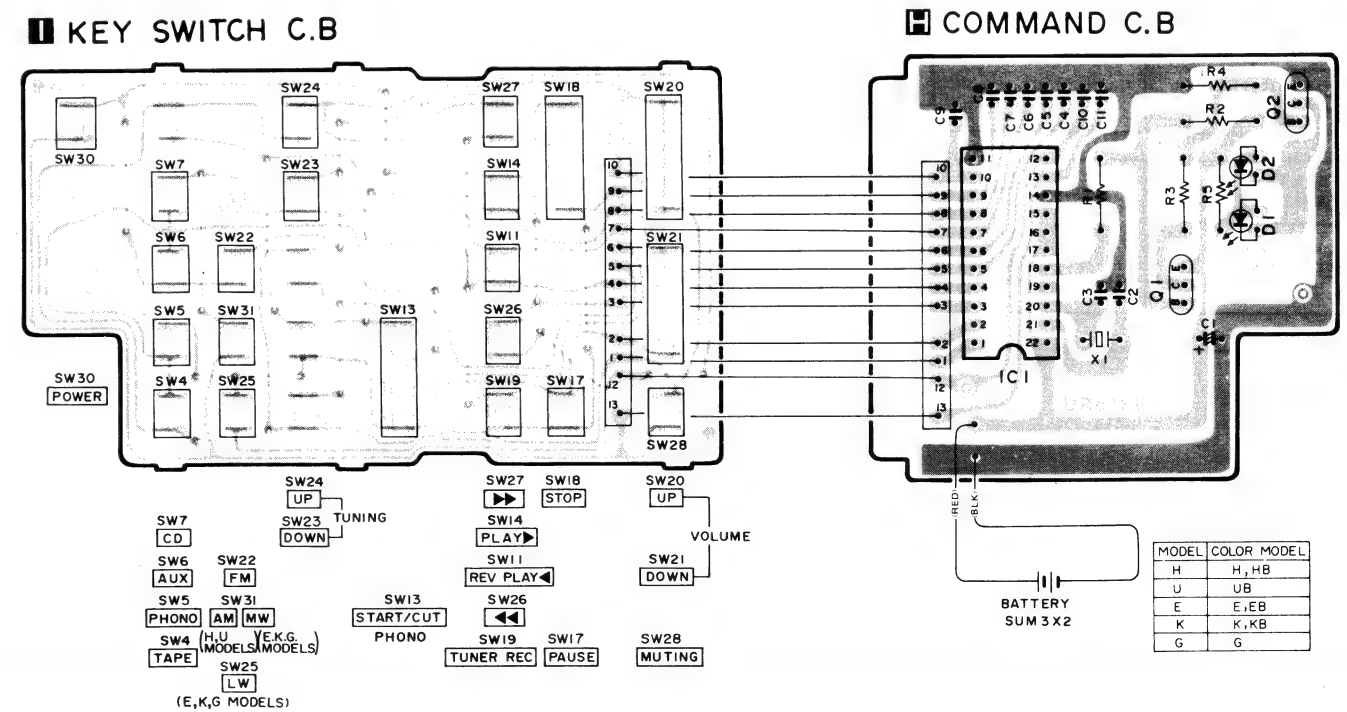
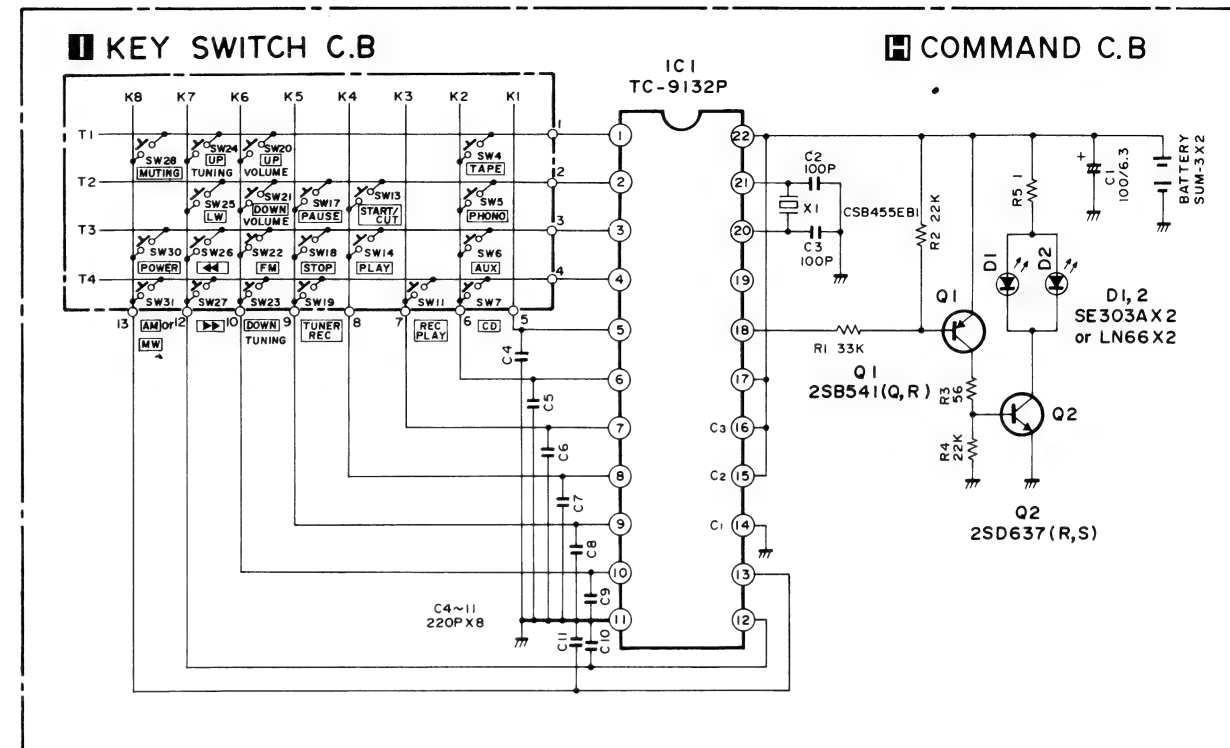
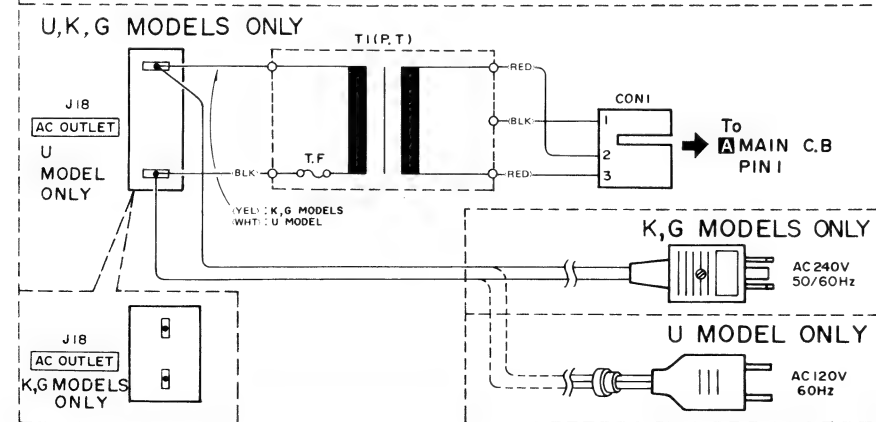
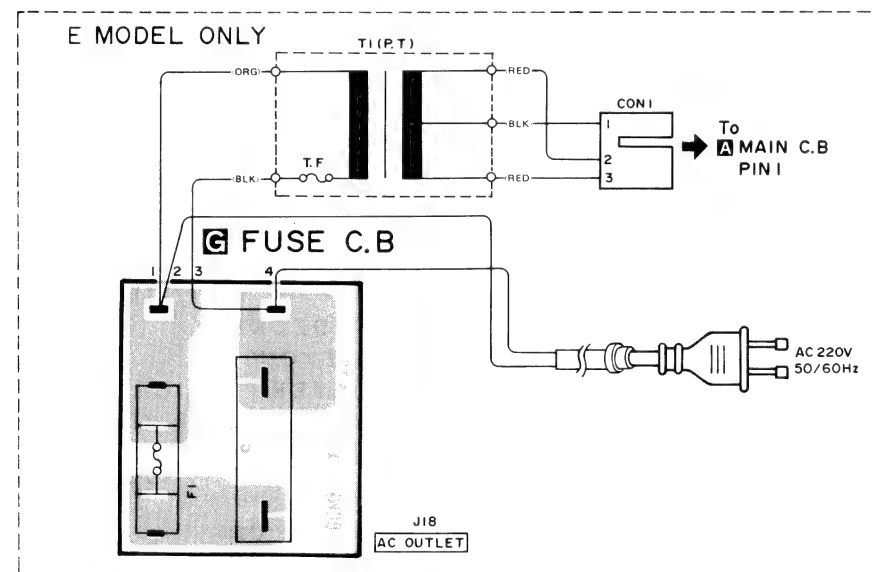
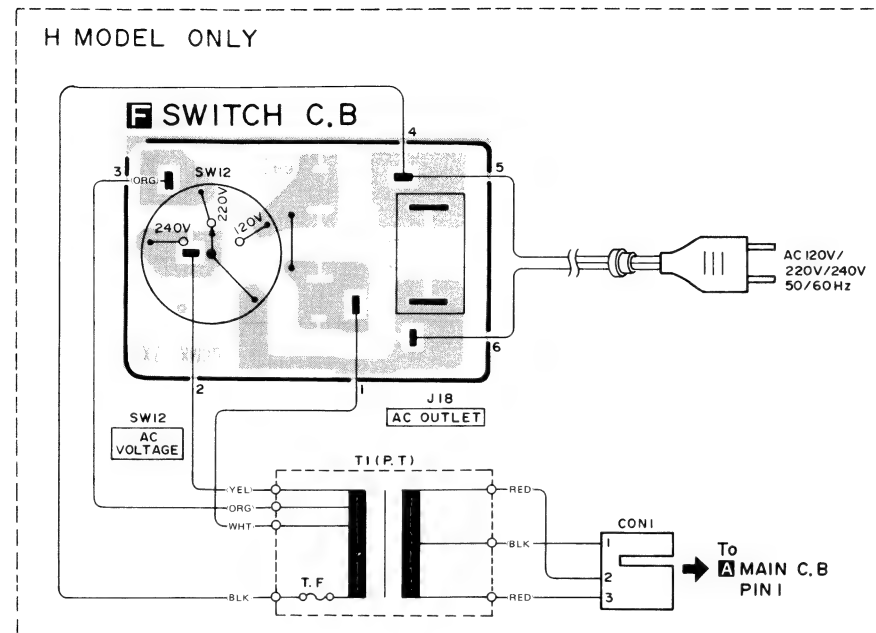


3, D60 SW2, D62
SL MUTING
OFF
ON



| MODEL | COLOR | MODEL |
|-------|-------|-------|
| H | H, HB | |
| U | UB | |
| E | E, EB | |
| K | K, KB | |
| G | G | |

15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30

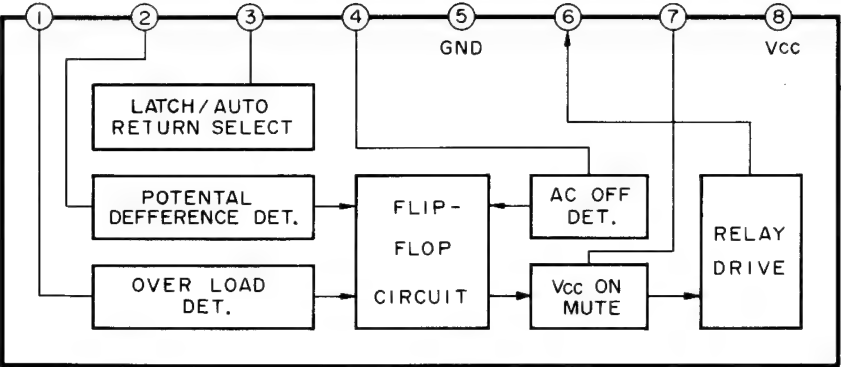


Circuit description

• μ PC1237H Pin description

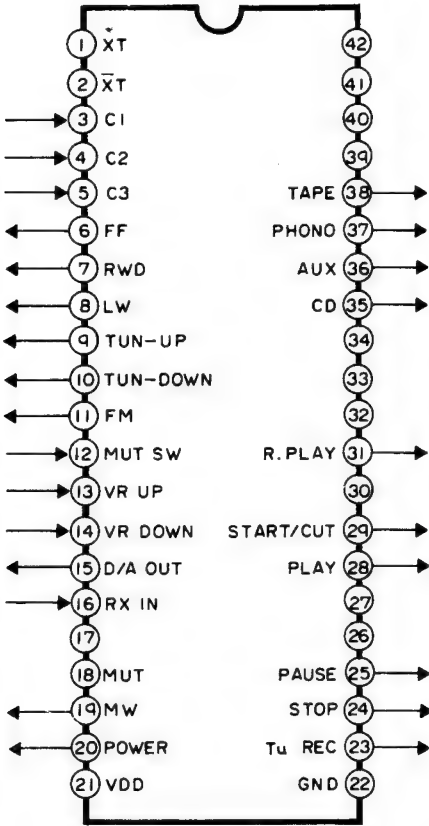
| Pin No. | Pin names | Function |
|---------|----------------------------------|--|
| ① | Overload detection | Detection of speaker pins short-circuited |
| ② | Middle point potential detection | Relay OFF at approx 0.6 V (BX-110 SP pin ± 2 V) (MX-90 SP pin ± 1.5 V) |
| ③ | Auto-return selection | Auto-return when it is grounded, and non-return when it is connected to the capacitor. |
| ④ | AC detection | Set relay to OFF when power switch is set to OFF. |
| ⑤ | GND | GND |
| ⑥ | Relay drive | Drives protection relay. |
| ⑦ | Power ON, MUTE | Time constant circuit pin from the timer power ON until the relay is ON. |
| ⑧ | Vcc | +B |

μ PC1237H




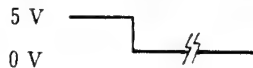
1. DESCRIPTION OF IC TC9134P

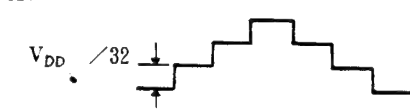

1-1. Pin names



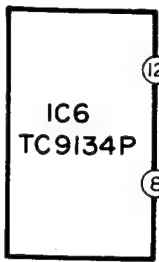
* The arrows show the signal direction

1-2. Description of pins

| Pin No. | Pin names | Function |
|---------|------------------------------|--|
| 1, 2 | X _T , \bar{X}_T | Timing oscillator pins.  450kHz |
| 3 | C ₁ | 0 Code input pins. |
| 4 | C ₂ | 1 The code of the transmitter and the |
| 5 | C ₃ | 1 cords set by these pins are compared, and the input is accepted when they are the same. |
| 6 | FF(DECK) | Continuout signal output pins. This output is kept at "LOW" level while the reception signal is input.  |
| 7 | RWD(DECK) | |
| 8 | LW(TUNER) | |
| 9 | UP(TUNER) | |
| 10 | DOWN(TUNER) | |
| 11 | FM(TUNER) | |
| 12 | MUT SW | The MUTE signal output pin 18 is inverted with the MUTE switch input pin set to "LOW" level. |
| 13 | VR UP | D/A converter external control input pins. Pin 13 is the volume UP control pin; the voltage at pin 15 is raised when pin 13 is set to "LOW" level. Pin 14 is the volume DOWN control pin; the voltage at pin 15 drops when pin 14 is set to "LOW" level. |
| 14 | VR DOWN | |

| Pin No. | Pin names | Function | | | | | | | | | | | | |
|---------|--------------------|--|--|---------|--------|-------|----------|----------|-------|-------------|----------|--------|----------|-----------|
| 15 | D/A OUT | Volume control voltage output pin. The voltage is output by diving V _{DD} by 32.  | | | | | | | | | | | | |
| 16 | Rx. IN | Reception signal input pin. This pin inputs the command signal with the carrier signal eliminated. | | | | | | | | | | | | |
| 17 | - | (Blank pin) | | | | | | | | | | | | |
| 18 | MUT | MUTE signal output pin. This is controlled by pin 12. <table><tr><td></td><td>MUT OFF</td><td>MUT ON</td></tr><tr><td>IC6.②</td><td>HIGH/LOW</td><td>HIGH/LOW</td></tr><tr><td>IC6.③</td><td>HIGH(3.5 V)</td><td>LOW(0 V)</td></tr><tr><td>IC10.⑥</td><td>LOW(0 V)</td><td>HIGH(9 V)</td></tr></table> | | MUT OFF | MUT ON | IC6.② | HIGH/LOW | HIGH/LOW | IC6.③ | HIGH(3.5 V) | LOW(0 V) | IC10.⑥ | LOW(0 V) | HIGH(9 V) |
| | MUT OFF | MUT ON | | | | | | | | | | | | |
| IC6.② | HIGH/LOW | HIGH/LOW | | | | | | | | | | | | |
| IC6.③ | HIGH(3.5 V) | LOW(0 V) | | | | | | | | | | | | |
| IC10.⑥ | LOW(0 V) | HIGH(9 V) | | | | | | | | | | | | |
| 19 | MW(TUNER) | Single-shot signal (single pulse) output pin. When a command signal is input, a "LOW" level pulse is output from only the designated pin.  | | | | | | | | | | | | |
| 20 | POWER | | | | | | | | | | | | | |
| 23 | TUNER REC(DECK) | | | | | | | | | | | | | |
| 24 | STOP(DECK) | | | | | | | | | | | | | |
| 25 | PAUSE(DECK) | | | | | | | | | | | | | |
| 26, 27 | - | | | | | | | | | | | | | |
| 28 | PLAY(DECK) | | | | | | | | | | | | | |
| 29 | START/CUT (PLAYER) | | | | | | | | | | | | | |
| 30 | - | | | | | | | | | | | | | |
| 31 | R · PLAY(DECK) | | | | | | | | | | | | | |
| 32~34 | - | (Blank pin) | | | | | | | | | | | | |
| 35 | CD(FUNCTION) | (Blank pin) | | | | | | | | | | | | |
| 36 | AUX(FUNCTION) | | | | | | | | | | | | | |
| 37 | PHONO (FUNCTION) | | | | | | | | | | | | | |
| 38 | TAPE(FUNCTION) | | | | | | | | | | | | | |
| 39~42 | - | (Blank pin) | | | | | | | | | | | | |
| 21 | V _{DD} | Power voltage pin. | | | | | | | | | | | | |
| 22 | GND | GND pin. | | | | | | | | | | | | |

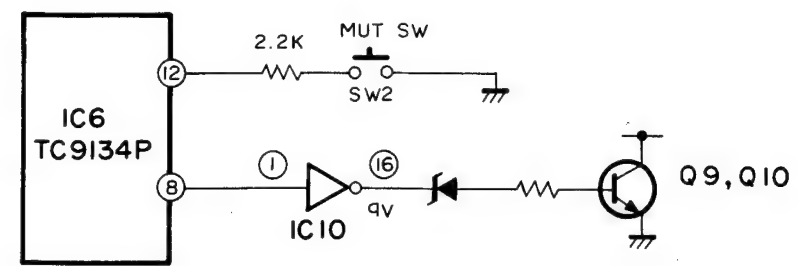
1-3. Descr



1-3-1.

1-3-2.

1-3. Description of muting



| | MUT OFF | MUT ON |
|--------|------------|----------|
| IC6 ⑫ | HIGH/LOW | HIGH/LOW |
| IC6 ⑧ | HIGH(3.5V) | LOW(0V) |
| IC10 ⑩ | LOW (0V) | HIGH(9V) |

1-3-1. Description of pins and SW2

SW2 ... This is a non-locking switch: pin ⑫ is set to "LOW" level (0V) only when this switch is pressed.

Pin ⑧ ... This is the pin ⑧ control pin and is set to "HIGH" level (5V) in general: pin ⑧ is changed over "HIGH" level → "LOW" level → "HIGH" level → "LOW" level ... every time this pin is set to "LOW" level.

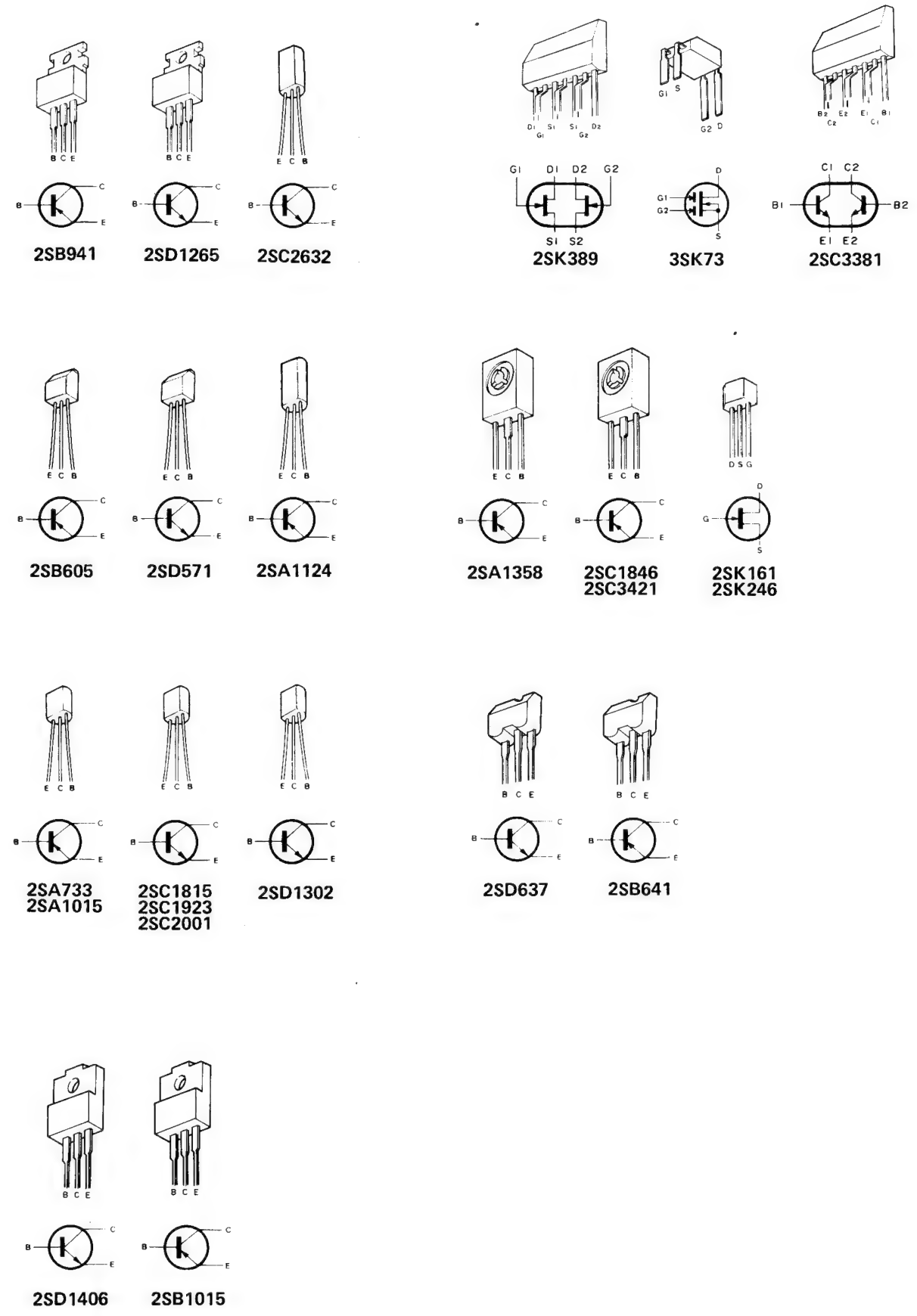
Pin ⑩ ... The inside of pin ⑩ is flip-flop circuit, and is changed "HIGH" level → "LOW" level → "HIGH" level → "LOW" level ... every time pin ⑫ is set to "LOW" level.

1-3-2. Description of MUTE operation

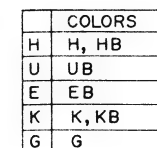
Pin ⑧ is set to "HIGH" level at first(when the AC cord is plugged), and in the MUTE OFF mode. When the MUTE switch is pressed to set pin ⑧ to "LOW" level (5V), pin ⑧ is set to the "LOW" level and the unit enters the MUTE ON mode.

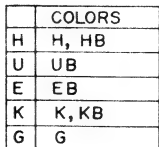
When the MUTE switch pressed then, pin ⑩ is set to "HIGH" level and the unit enters the MUTE OFF mode.

* When the remote control operation is performed, pin ⑩ is set to "HIGH" level and "LOW" level alternately every time the MUTE button is pressed.

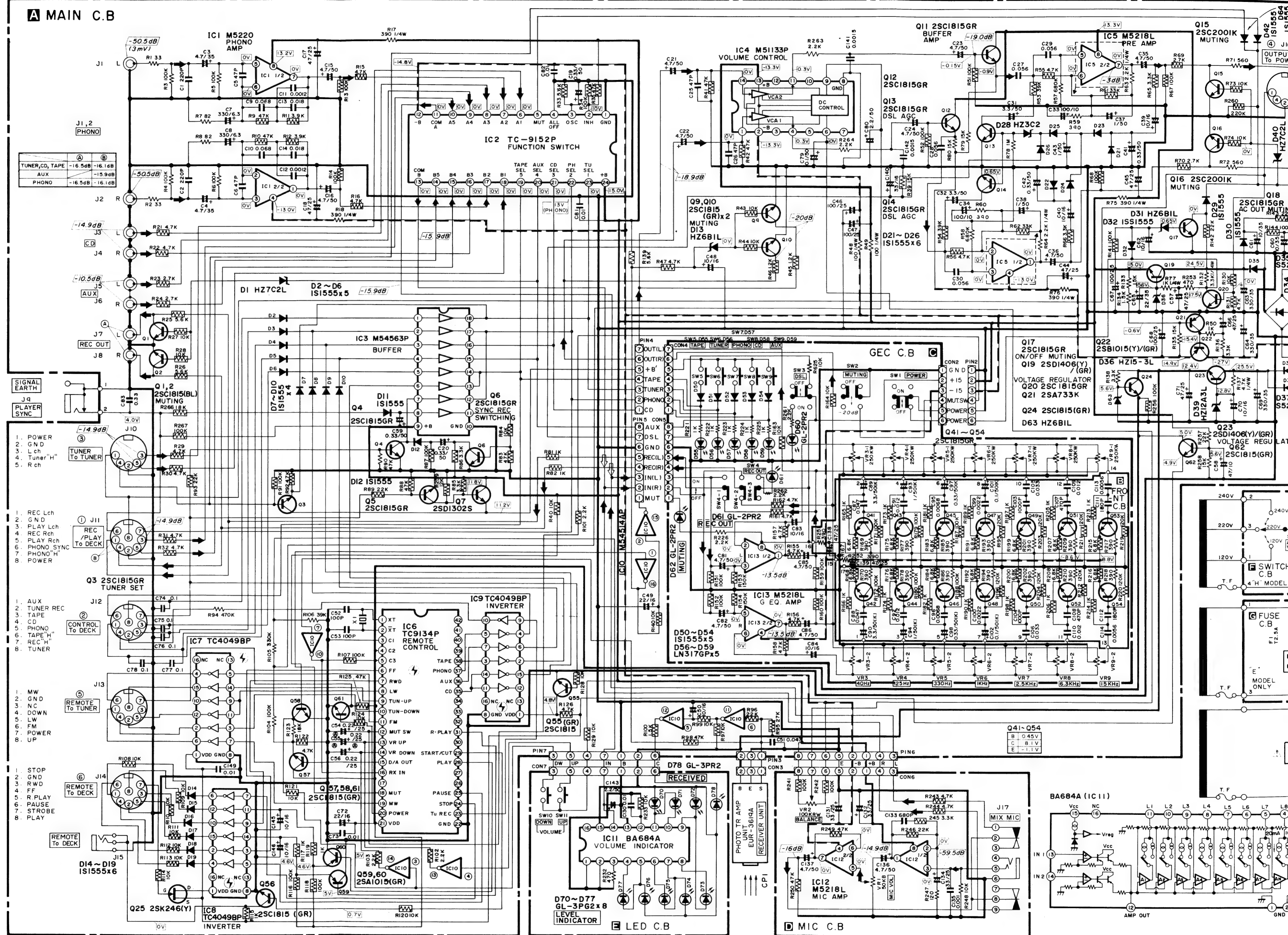


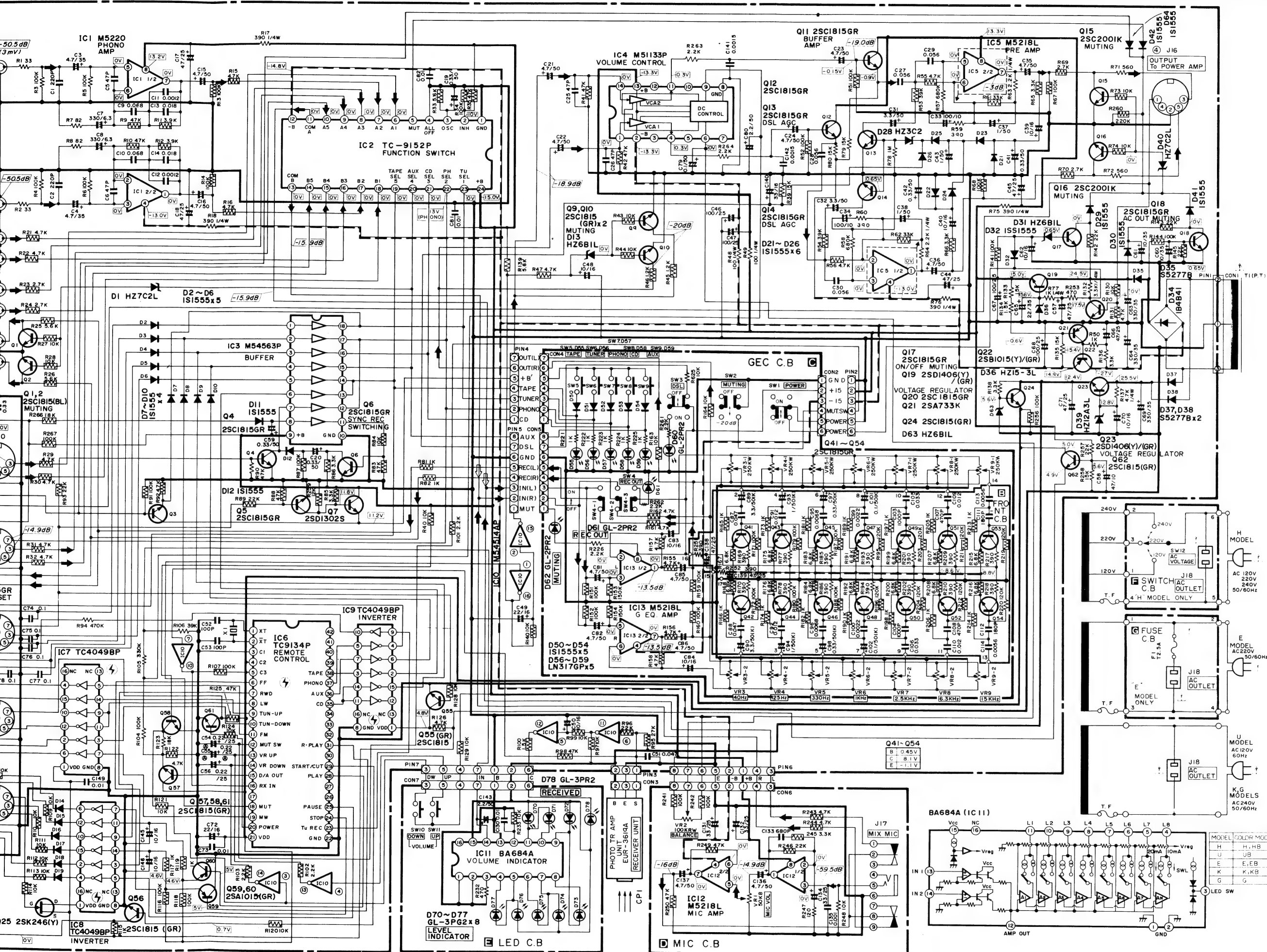
J








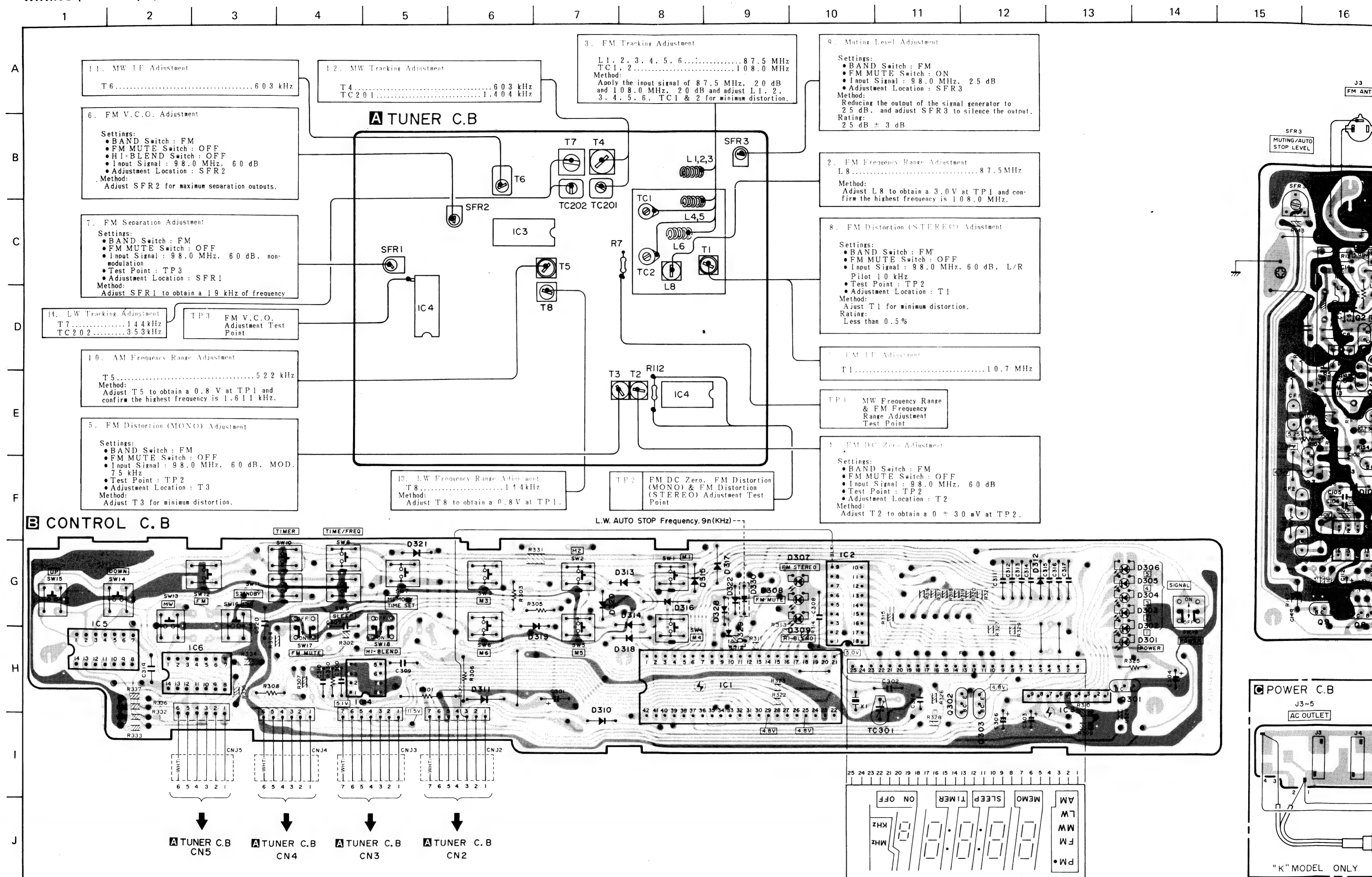
| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|



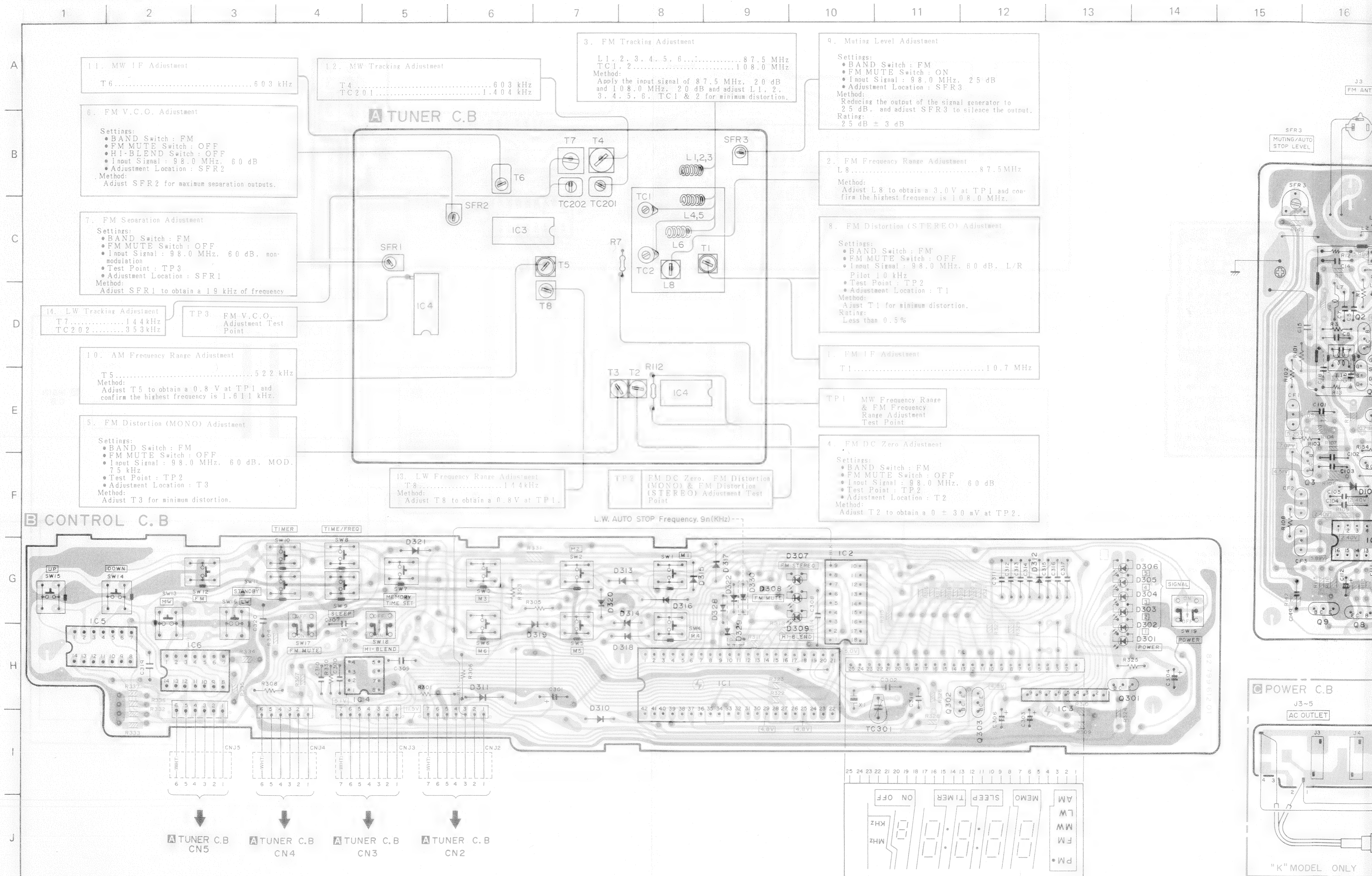


NOTES (1)  Earth pattern  Printed resistor pattern · Component side pattern  Others pattern
(2) The voltage is the reference value measured with a tester (20 K ohms/V DC) when there are no signals.
But () is with AM reception.



WIRING (TX-110 E, K)



WIRING (TX-110 E, K)

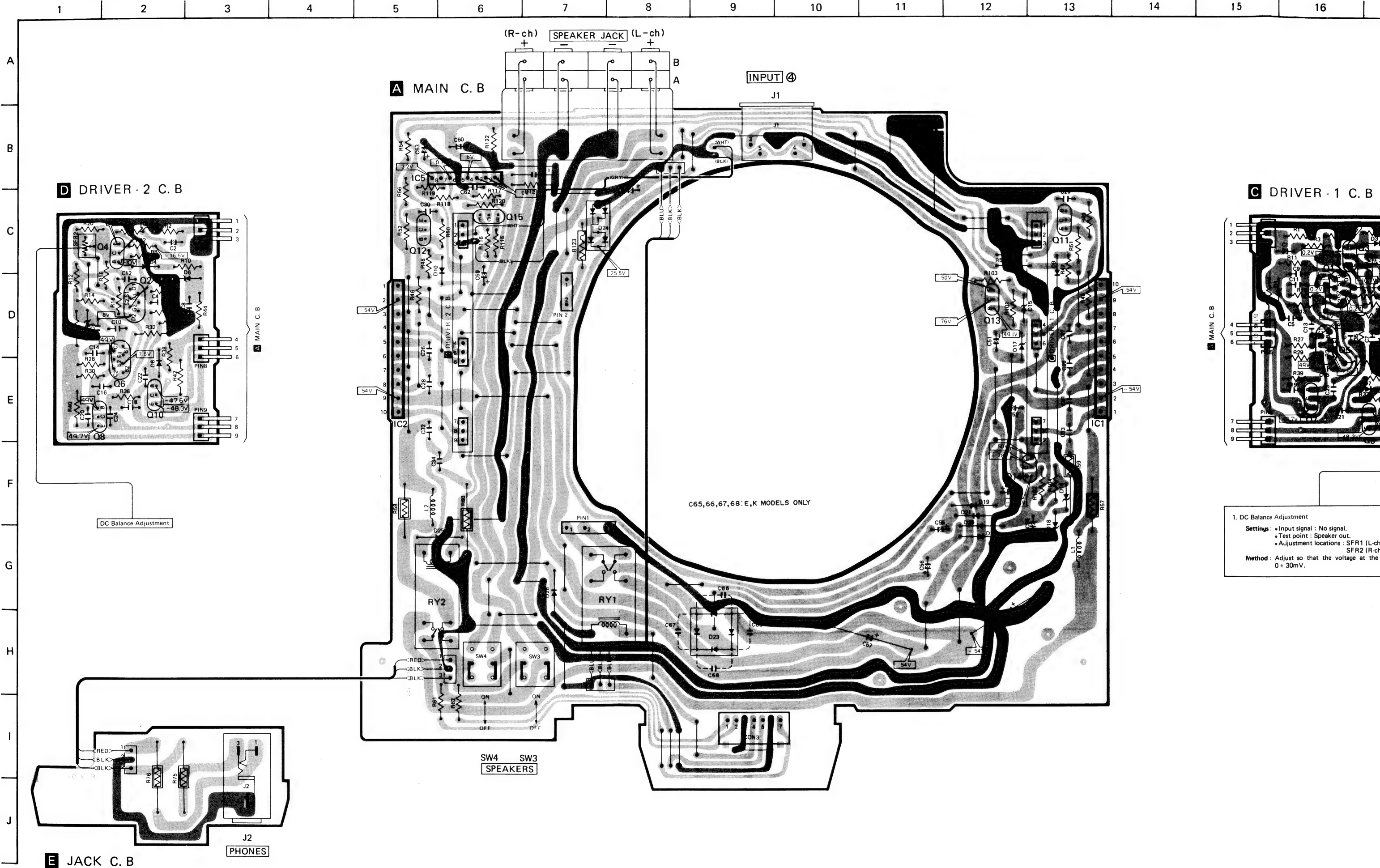




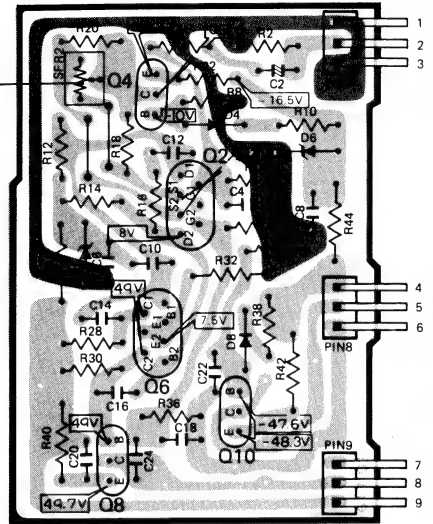
NOTES (1)  Earth pattern  Others pattern
(2) The voltage is the reference value measured with a tester (20 K ohms/V DC) when there are no signals.

Safety component symbol
This symbol is given to important parts which serve to maintain the safety of the product, and which are made to conform to special

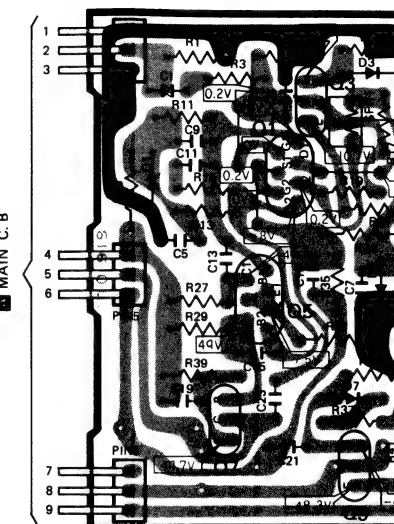
WIRING (BX-110)



D DRIVER - 2 C. B

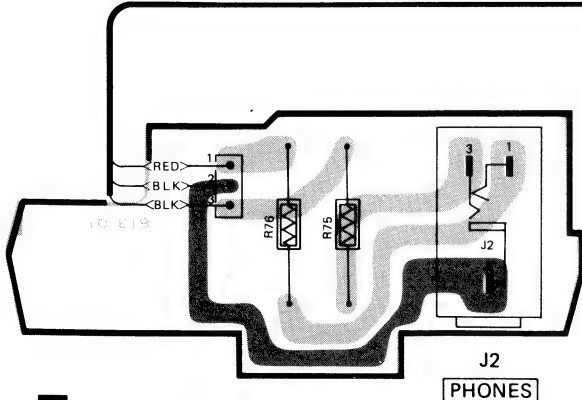


C DRIVER - 1 C. B

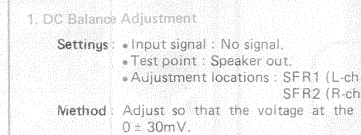


1. DC Balance Adjustment
Settings : • Input signal : No signal.
• Test point : Speaker out.
• Adjustment locations : SFR1 (L-ch)
SFR2 (R-ch)
Method : Adjust so that the voltage at the test point is 0 ± 30mV.

E JACK C. B



WIRING (BX-110)



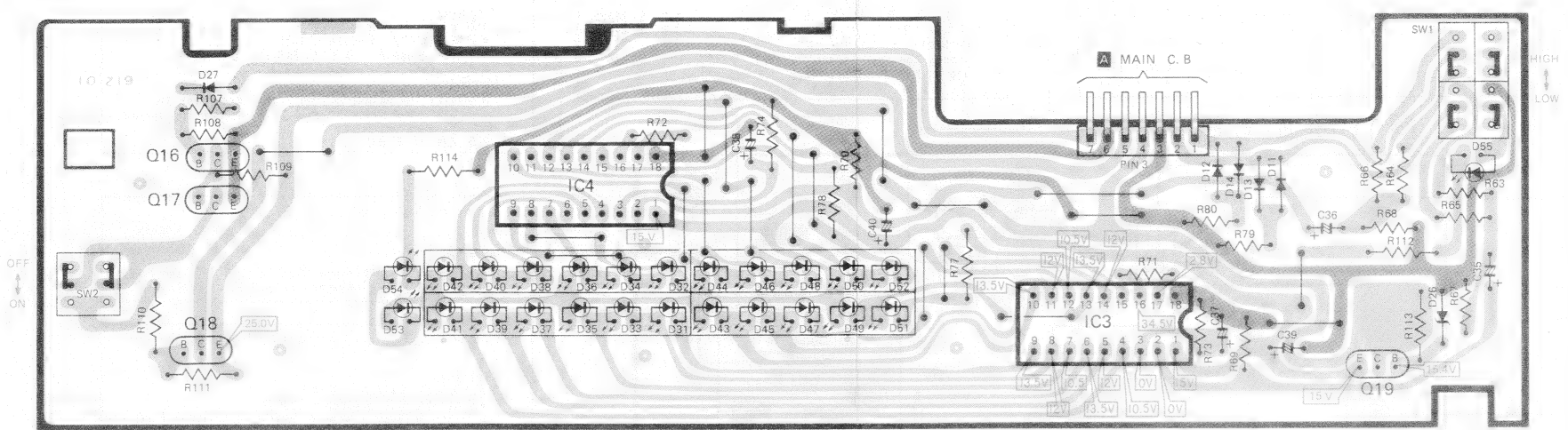
parts which serve to maintain
e made to conform to special

BX-110 H,HB,UB,E
EB,K,KB,G

BX-110 H,HB,UB,E
EB,K,KB,G

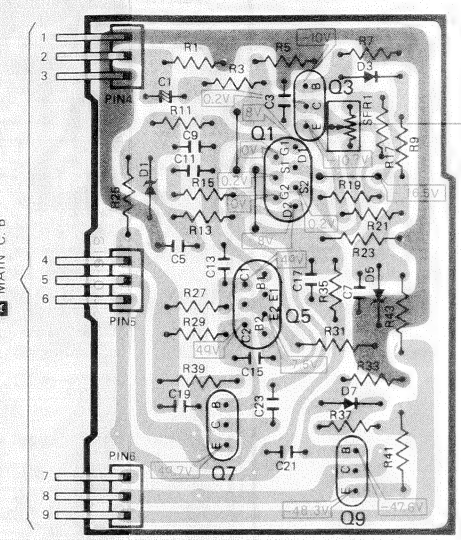
15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30

B INDICATOR C.B



| COLORS | |
|--------|-------|
| H | H, HB |
| U | UB |
| E | EB |
| K | K, KB |
| G | G |

C DRIVER-1 C.B

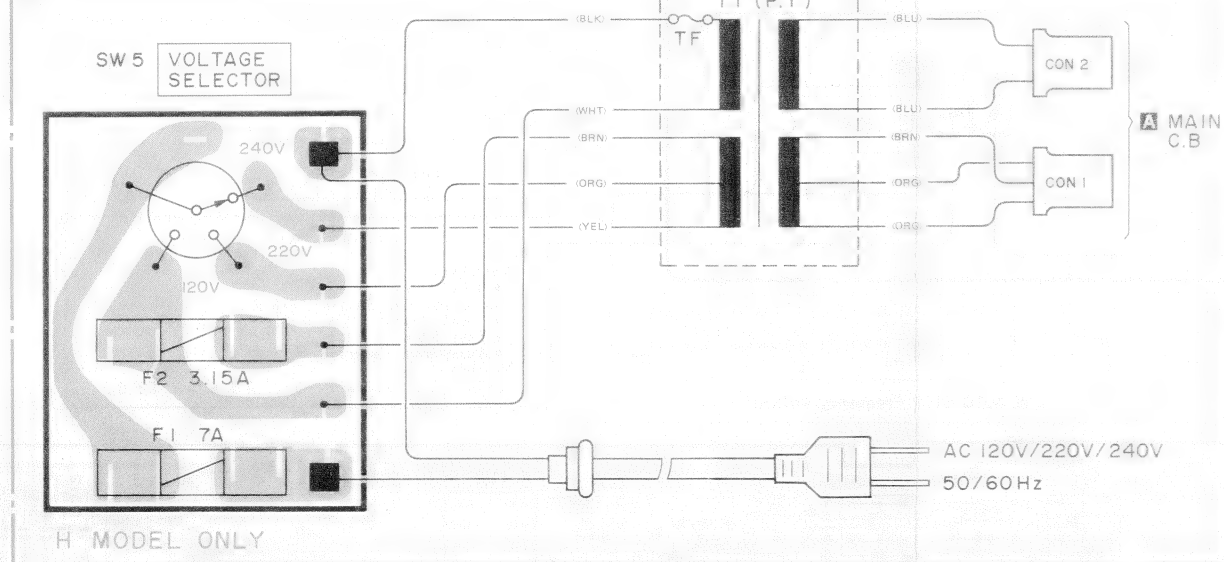


SW2
POWER

D31 ~ D54 LEVEL INDICATOR

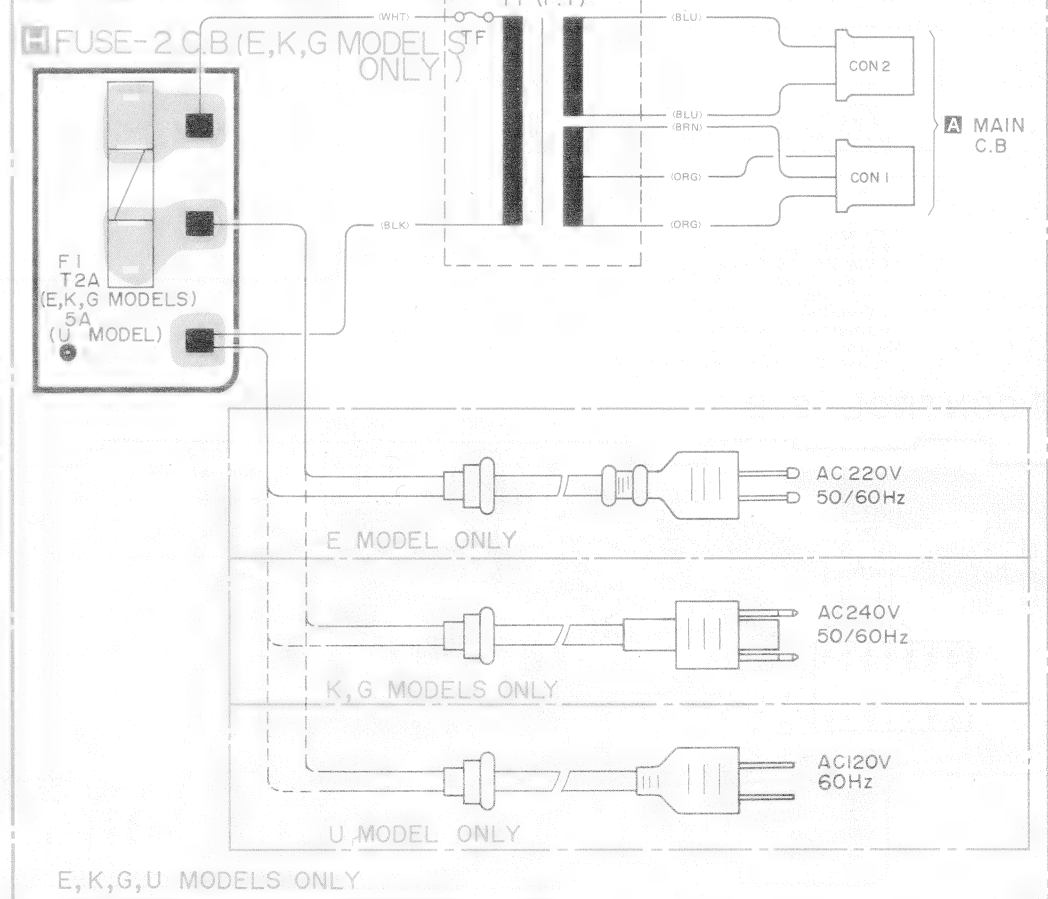
SW1
INDICATOR

G SWITCH C.B



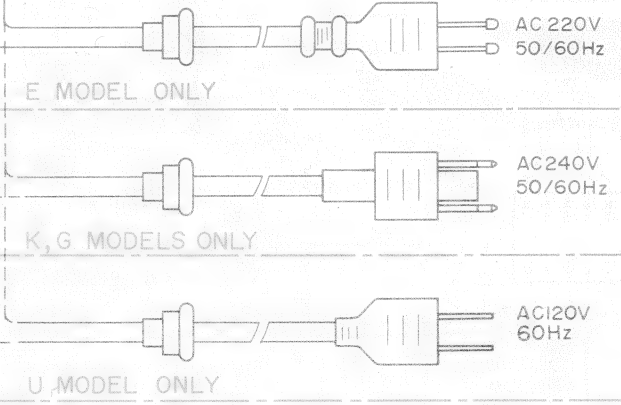
H MODEL ONLY

F FUSE-1 C.B (U MODEL ONLY)

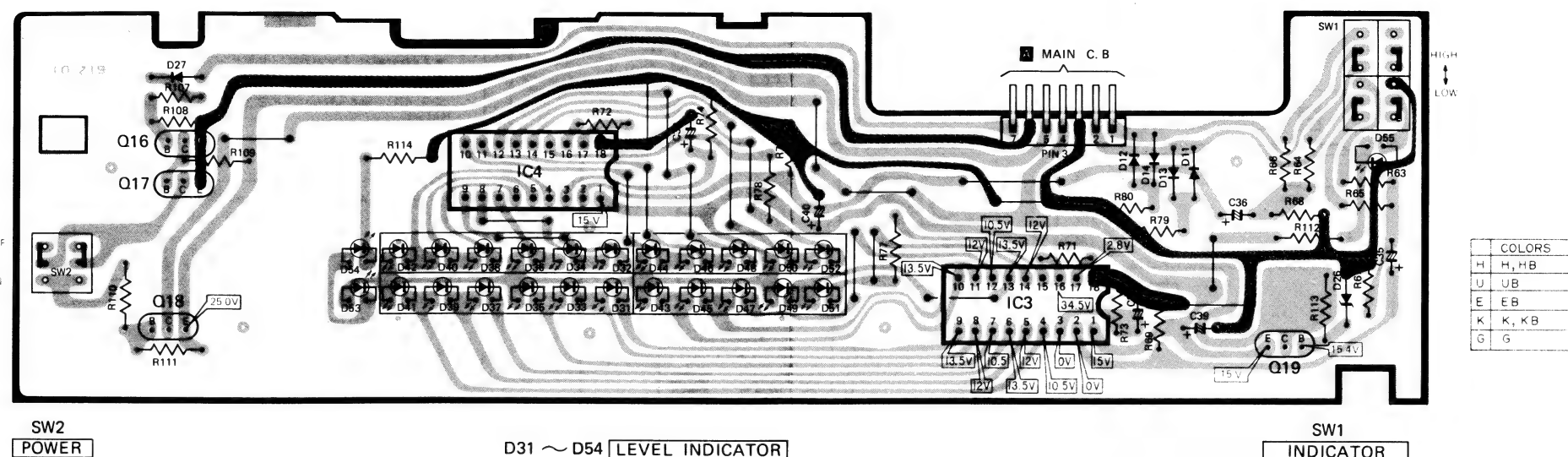


E, K, G, U MODELS ONLY

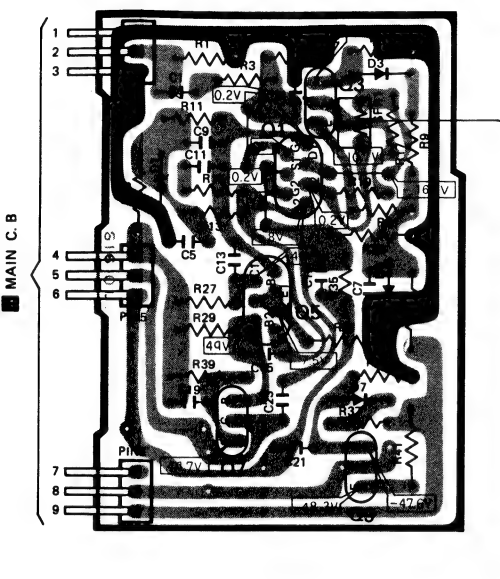
1. DC Balance Adjustment
Settings: • Input signal: No signal.
• Test point: Speaker out.
• Adjustment locations: SFR1 (L-ch)
SFR2 (R-ch)
Method: Adjust so that the voltage at the test point is
0 ± 30mV.



B INDICATOR C. B



C DRIVER - 1 C. B



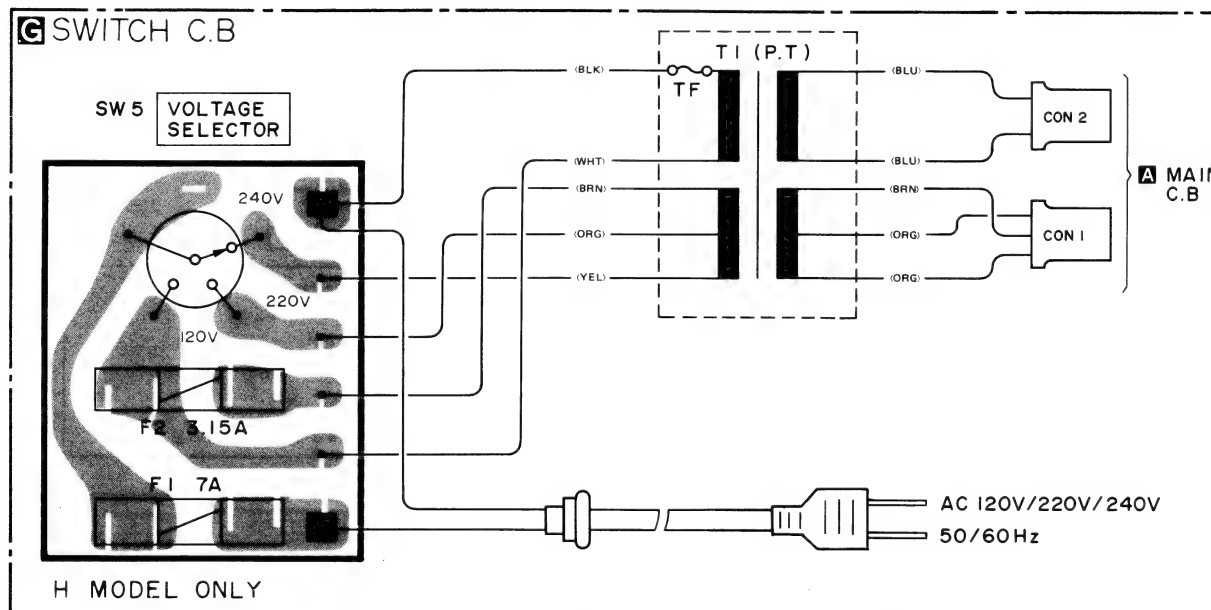
1. DC Balance Adjustment

Settings:

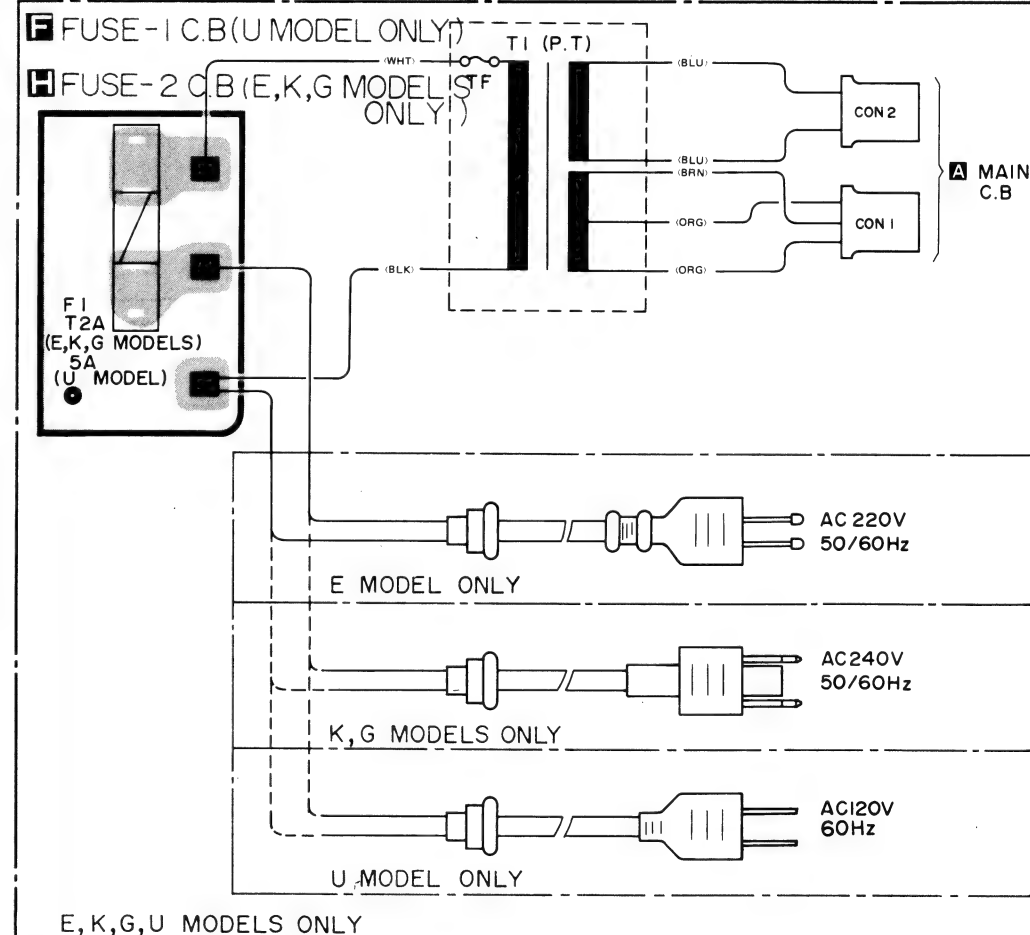
- Input signal : No signal.
- Test point : Speaker out.
- Adjustment locations : SFR1 (L-ch)
SFR2 (R-ch)

Method: Adjust so that the voltage at the test point is $0 \pm 30\text{mV}$.

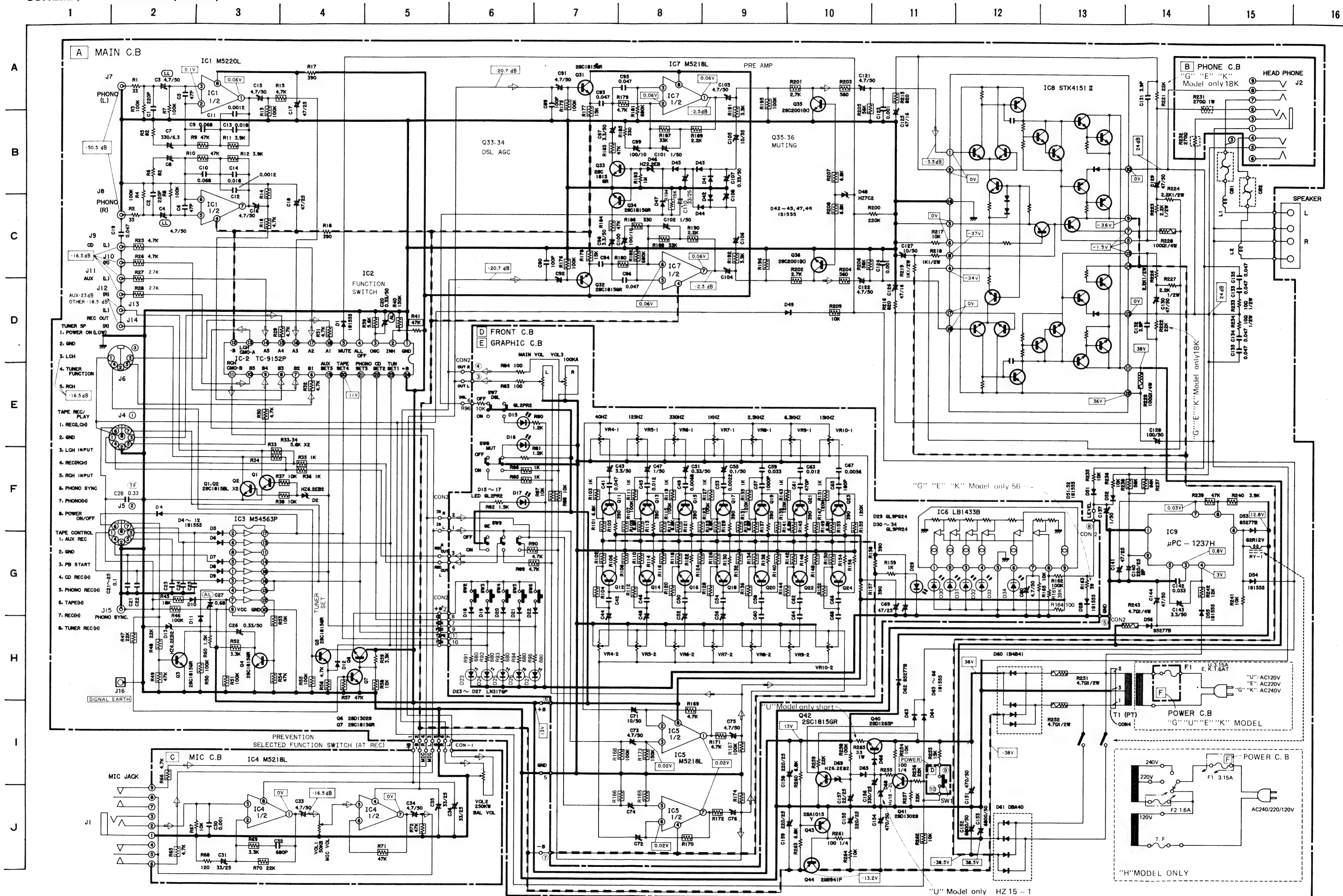
G SWITCH C.B

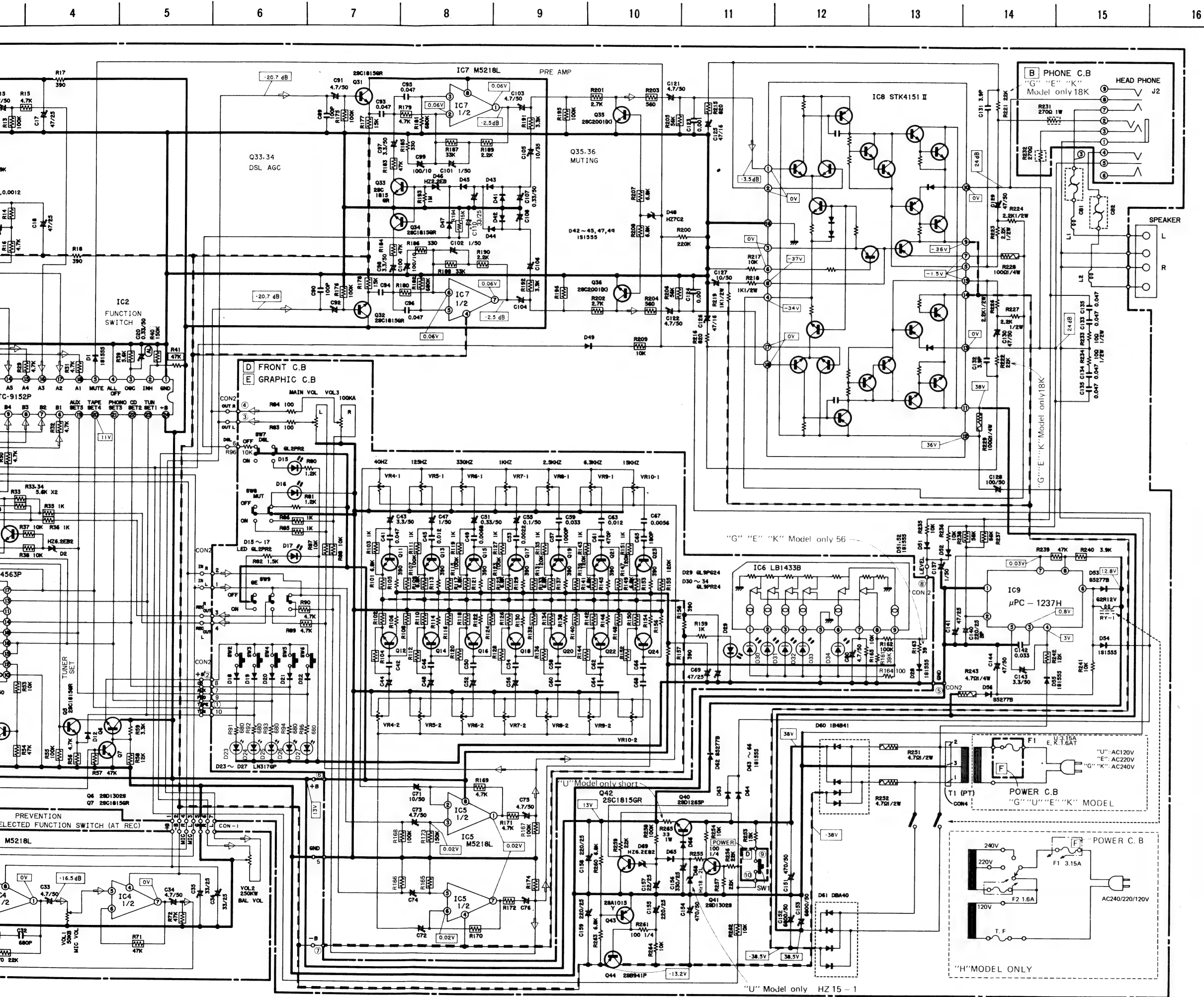


F FUSE-1 C.B (U MODEL ONLY)



SCHEMATIC DIAGRAM (MX-90)





NOTES:

- 1) B (+) power supply ■■■ B (-) power supply
- 2) ➔ Signal path
- 3) The voltage is the reference value measured with a tester (20 k-ohms/V DC) when there are no signals. But () is with AM reception or recording.
- 4) Resistors with no designation have a rated power of 1/4W and a tolerance of ±5%.
- 5) Capacitors with no designation have a dielectric strength of less than 50WV.
- 6) The only capacitor tolerance indicated are ±5% (J) and ±10% (K).
- 7) Ceramic capacitor symbols:
 — For temperature compensation (SL)
 — High dielectric constant system (YY)
 — High dielectric constant system (YW, YP, YZ)
 — Semiconductor ceramic
 — For temperature compensation (SH)
- 8) Explanation of symbols
 M Mylar capacitor
 A Aluminum solid capacitor
 PP Polypropylene film capacitor
 BP Bi-polarized capacitor
 L Low-leakage capacitor
 T Tantalum capacitor
 S Styrol capacitor
 Printed resistor
 Fuse resistor
 Nonflammable resistor
 Low noise resistor

⚠ Safety component symbol

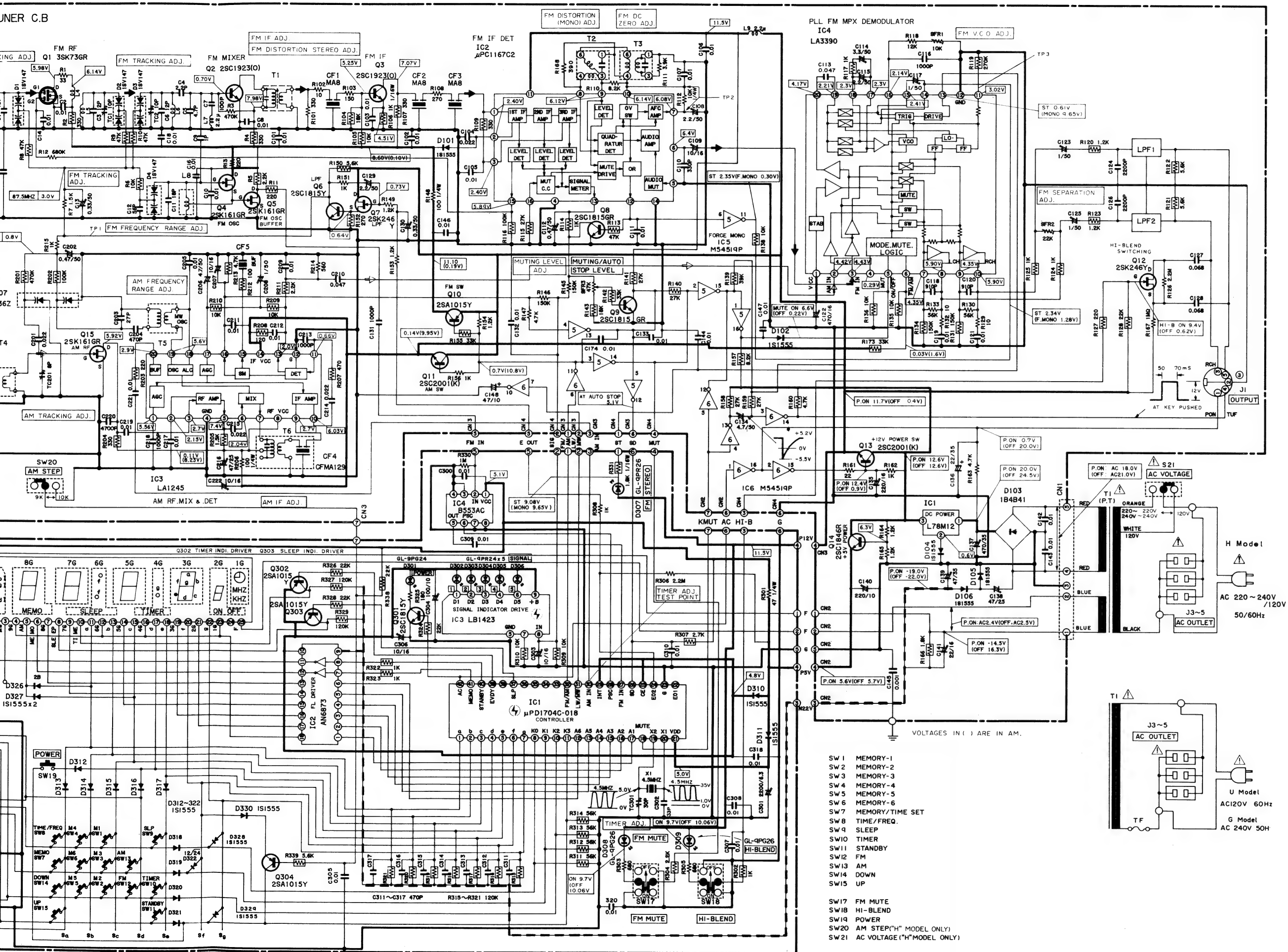
This symbol is given to important parts which serve to maintain the safety of the product, and which are made to conform to special safety specifications. Therefore, when replacing a component with this symbol, make absolutely sure that you use a designated part.

- This schematic diagram is subject to change without notice in the interests of improved performance.

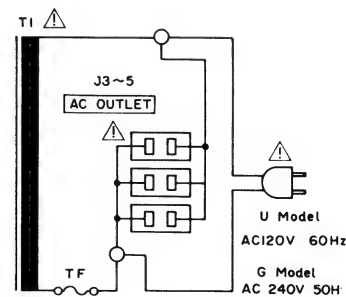
| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 1 |
|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|---|



UNER C.B



- SW 1 MEMORY-1
SW 2 MEMORY-2
SW 3 MEMORY-3
SW 4 MEMORY-4
SW 5 MEMORY-5
SW 6 MEMORY-6
SW 7 MEMORY/TIME SET
SW 8 TIME/FREQ.
SW 9 SLEEP
SW 10 TIMER
SW 11 STANDBY
SW 12 FM
SW 13 AM
SW 14 DOWN
SW 15 UP
- SW 17 FM MUTE
SW 18 HI-BLEND
SW 19 POWER
SW 20 AM STEP ("H" MODEL ONLY)
SW 21 AC VOLTAGE ("H" MODEL ONLY)



ELECTRICAL MAIN PARTS LIST

“***” shows unavailable Repair Part.

| Symbol No. | Part No. | Description | Remark |
|---|---------------|--|--------|
| <MAIN CIRCUIT BOARD SECTION> | | | |
| PCB-A | * | Main circuit board | |
| IC1 | 87-027-925-01 | IC, M5220 | |
| IC2 | 87-027-978-01 | IC, TC9152P | |
| IC3 | 87-020-145-01 | IC, M54563 | |
| IC7 | 87-027-895-01 | IC, M5218L | |
| IC8 | 87-020-090-01 | IC, STK-4151-2 | |
| IC9 | 87-027-787-01 | IC, μ PC1237H | |
| Q1,2 | 89-318-156-01 | Transistor, 2SC1815BL | |
| Q3,4,5,7,31,32,33,34,42 | 89-318-155-01 | Transistor, 2SC1815GR | |
| Q6,41 | 89-413-023-01 | Transistor, 2SD1302S | |
| Q13 | 89-110-155-01 | Transistor, 2SA1015(GR) | |
| Q35,36 | 89-320-011-01 | Transistor, 2SC2001(K) | |
| Q40 | 89-412-653-01 | Transistor, 2SD1265(O) | |
| Q44 | 89-209-412-31 | Transistor, 2SB941(PQ) | |
| D1,4,5,6,7,8,9,10,11,12,41,42,43,44,45,47,49,51,52,54,55,57,63,64,65,66 | 89-027-097-01 | Diode, 1S1555 | |
| D2,13,69 | 87-027-431-01 | Zener diode, RD6.2EB2 | |
| D45 | 87-027-405-01 | Zener diode, RD2.2EB | |
| D48 | 87-027-606-01 | Zener diode, HZ7C2L | |
| D53,56,62 | 87-027-365-01 | Diode, S5277B | |
| D60 | 87-027-376-01 | Diode, 1B4B41 | |
| D61 | 87-020-144-01 | Diode, DBA4D0 | |
| D68 | 87-027-347-01 | Zener diode, HZ18-2L (E, EB, K, KB, G models only) | |
| D68 | 87-027-508-01 | Zener diode, HZ15-1 (UB model only) | |
| L1,2 | 87-005-158-01 | Inductor coil 1 μ H | |
| RY1 | 87-045-201-01 | Relay G2R 12V | |
| CB1,2 | 87-030-077-01 | Circuit breaker, 2.2A | |
| | 82-795-613-01 | Speaker terminal, 4P | *** |
| J4,5,6 | 82-798-626-01 | Pin Jack ass'y (REC/PLAY, CONTROL, TUNER) | |
| J7,8,9,10,11,12,13,14,15 | 81-731-614-01 | Pin Jack ass'y (PHONO, CD, AUX, RECOUT) | |
| CON2,3 | 82-798-643-01 | Heatsink | *** |
| CON4 | 87-049-367-01 | Connector ass'y, 10P | *** |
| | 87-032-897-01 | Connector ass'y, 3P | *** |
| PIN1 | 87-049-277-01 | Pin, 7P | *** |
| <Resistors> | | | |
| Δ R228,229 | 87-029-119-01 | 100 Ω 1/4W Fuse resistor | |
| Δ R243 | 87-029-114-01 | 4.7 Ω 1/4W Fuse resistor | |
| Δ R251,252 | 87-029-366-01 | 4.7 Ω 1/2W Fuse resistor | |
| R265 | 87-025-351-01 | 33 Ω 1W Nonflammable | |
| (H, HB, E, EB, K, KB, G models only) | | | |
| <Capacitors> | | | |
| C5,6 | 87-018-024-01 | 47pF Ceramic | |
| C89,90 | 87-018-032-01 | 100pF Ceramic | |
| C123,124 | 87-018-044-01 | 1000pF Ceramic | |
| C152,153 | 87-015-956-01 | 6800 μ F 50V Electrolytic | |
| C158,159 | 87-015-989-01 | 220 μ F 25V Electrolytic BP | |
| <PHONO CIRCUIT BOARD SECTION> | | | |
| PCB-B | * | Phono circuit board | |
| J2 | 87-049-352-01 | Jack, 6.3 ϕ w/switch (HEADPHONE) | |

| Symbol No. | Part No. | Description | Remark |
|--|---------------|---|--------|
| <Resistor> | | | |
| R231,232 | 87-025-154-01 | 270 Ω 1W Metal film | |
| <MIC CIRCUIT BOARD SECTION> | | | |
| PCB-C | * | MIC circuit board | |
| IC4 | 87-027-895-01 | IC, M5218L | |
| J1 | 82-675-661-01 | Jack, 6.3 ϕ w/switch (MIC) | |
| VR2 | 87-021-847-01 | Volume, 250k Ω -W(BALANCE) | |
| VR3 | 87-021-848-01 | Volume, 50k Ω -B(MIC VOLUME) | |
| CON1 | 82-798-640-01 | Connector ass'y 7P | *** |
| <Capacitors> | | | |
| C30 | 87-018-044-11 | 0.01 μ F Ceramic | |
| C32 | 87-018-042-01 | 680pF Ceramic | |
| <FRONT CIRCUIT BOARD SECTION> | | | |
| PCB-D | * | Front circuit board | |
| IC5 | 87-027-895-01 | IC, M5218L | |
| D15,16,17 | 87-020-128-01 | LED, GL-2PR2(MUT. DSL, REC OUT) | |
| D23,24,25,26 | 87-027-543-01 | LED, LN317GP(TAPE, TUNER, PHONO, CD) | |
| D29 | 87-020-130-01 | LED, GL-9PG24 | |
| D30,31,32,33,34 | 87-020-127-01 | LED, GL-9PR24(LEVEL) | |
| VR3 | 87-021-845-01 | Slide volume, 100k Ω -W(VOLUME) | |
| VR4,5,6,7,8,9,10 | 87-021-846-01 | Slide volume, 250k Ω -W(EQUALIZER VOL) | |
| SW1 | 87-031-692-01 | Push-switch(POWER) | |
| SW2,3,4,5,6 | 87-031-771-01 | Tact switch(TUNER, TAPE, PHONE, CD, AUX) | |
| SW7,8,9 | 87-031-815-01 | Push-switch(MUT. DSL, REC OUT) | |
| PIN2,3 | 87-049-366-01 | Pin, 20P | *** |
| <Capacitor> | | | |
| C73,74,75,76,80 | 87-015-698-01 | 4.7 μ F 50V Electrolytic | |
| <GRAPHIC CIRCUIT BOARD SECTION> | | | |
| PCB-E | * | GRAPHIC circuit board | |
| Q11,12,13,14,15,16,17,18,19,20,21,22,23,24 | 89-318-155-01 | Transistor, 2SC1815(GR) | |
| <Capacitors> | | | |
| C43,44 | 87-015-697-01 | 3.3 μ F 50V Electrolytic | |
| C47,48 | 87-015-695-01 | 1 μ F 50V Electrolytic | |
| C51,52 | 87-015-693-01 | 0.33 μ F 50V Electrolytic | |
| C55,56 | 87-015-691-01 | 0.1 μ F 50V Electrolytic | |
| C57,58 | 87-018-044-01 | 1000pF Ceramic | |
| C61,62 | 87-018-040-81 | 470pF Ceramic | |
| C65,66 | 87-018-035-81 | 180pF Ceramic SL | |

| Symbol No. | Part No. | Description | Remark |
|-------------------------------|---------------|---|--------|
| <POWER CIRCUIT BOARD SECTION> | | | |
| Δ PCB-F | * | Power circuit board (H, HB models only) | |
| Δ PCB-F | * | Power circuit board (UB, E, EB, K, KB, G models only) | |
| Δ F1 | 87-035-256-01 | Fuse, 3.15A (H, HB models only) | |
| Δ F1 | 87-035-302-01 | Fuse, 3.15A (UB model only) | |
| Δ F1 | 87-035-224-01 | Fuse, 1.6A "T" (E, EB, K, KB, G models only) | |
| Δ F2 | 87-035-252-01 | Fuse, 1.6A (H, HB models only) | |
| Δ S1 | 87-031-586-01 | Rotary switch(VOLTAGE SELECTOR) (H, HB models only) | |
| | 87-098-045-01 | Fuse label 3.15A (H, HB, UB models only) | |
| | 87-098-018-01 | Fuse label 1.6A "T" (E, EB, K, KB, G models only) | *** |
| | 87-098-042-01 | Fuse label 1.6A (H, HB models only) | *** |
| | 87-033-147-01 | Fuse clamp | |
| <MISCELLANEOUS> | | | |
| Δ T1 | 82-798-617-01 | Power transformer (H, HB models only) | |
| Δ T1 | 82-798-618-01 | Power transformer (UB models only) | |
| Δ T1 | 82-798-619-01 | Power transformer (E, EB models only) | |
| Δ T1 | 82-798-620-01 | Power transformer (K, KB, G models only) | |
| Δ | 87-034-962-01 | AC power cord (H model only) | |
| Δ | 87-034-992-01 | AC power cord (HB model only) | |
| Δ | 87-034-578-01 | AC power cord (UB model only) | |
| Δ | 82-788-674-01 | AC power cord (E, EB models only) | |
| Δ | 87-034-708-01 | AC power cord (K, KB, G models only) | |
| Δ | 87-085-184-01 | Cord bushing (H, HB models only) | |
| Δ | 87-085-189-01 | Cord bushing (UB model only) | |
| Δ | 87-085-185-01 | Cord bushing (E, EB, KB, G models only) | |

Note; Combination Circuit Board
The parts on the electrical parts list which are indicated by an asterisk (*) are supplied as one single combined circuit board. Therefore, they will not be supplied separately. If this becomes necessary, please order the entire circuit board.

Combination circuit board A 82-798-602-11
PCB-A 82-798-604-11
PCB-B 82-798-605-11
PCB-F 82-798-608-11 (H, HB models only)
PCB-F 82-798-607-11 (U, E, EB, K, KB, G models only)

Combination circuit board B 82-798-609-11
PCB-C 82-798-612-11
PCB-D 82-798-610-11
PCB-E 82-798-611-11

“***” shows unavailable Repair Part.

| Description | Remark |
|-----------------------|--------|
| BOARD N> | |
| 1-2 | |
| 815BL | |
| 815GR | |
| 302S | |
| 015(GR) | |
| 001(K) | |
| 265(O) | |
| 41(PQ) | |
| 2EB2 | |
| 2EB | |
| C2L | |
| 8-2L (E, EB, K, | |
| 5-1 (UB model only) | |
| V | |
| 2A | |
| P | |
| C/PLAY, CON- | |
| ONO, CD, AUX. | |
| 0P | |
| P | |
| s> | |
| W Fuse resistor | |
| W Fuse resistor | |
| W Fuse resistor | |
| W Nonflammable | |
| K, KB, G models only) | |
| s> | |
| Ceramic | |
| Ceramic | |
| Ceramic | |
| V Electrolytic | |
| V Electrolytic BP | |
| BOARD N> | |
| ch (HEADPHONE) | |

| Symbol No. | Part No. | Description | Remark |
|--|---------------|--|--------|
| < Resistor > | | | |
| R231.232 | 87-025-154-01 | 270Ω 1W Metal film | |
| < MIC CIRCUIT BOARD SECTION > | | | |
| PCB-C | * | MIC circuit board | |
| IC4 | 87-027-895-01 | IC, M5218L | |
| J1 | 82-675-661-01 | Jack, 6.3mm/switch (MIC) | |
| VR2 | 87-021-847-01 | Volume, 250kΩ-W(BALANCE) | |
| VR3 | 87-021-848-01 | Volume, 50kΩ-B(MIC VOLUME) | |
| CON1 | 82-798-640-01 | Connector ass'y 7P | *** |
| < Capacitors > | | | |
| C30 | 87-018-044-11 | 0.01μF Ceramic | |
| C32 | 87-018-042-01 | 680pF Ceramic | |
| < FRONT CIRCUIT BOARD SECTION > | | | |
| PCB-D | * | Front circuit board | |
| IC5 | 87-027-895-01 | IC, M5218L | |
| D15.16.17 | 87-020-128-01 | LED, GL-2PR2(MUT. DSL, REC OUT) | |
| D23.24.25.26 | 87-027-543-01 | LED, LN317GP(TAPE, TUNER, PHONO, CD) | |
| D29 | 87-020-130-01 | LED, GL-9PG24 | |
| D30.31.32.33.34 | 87-020-127-01 | LED, GL-9PR24(LEVEL) | |
| VR3 | 87-021-845-01 | Slide volume, 100kΩ-W(VOLUME) | |
| VR4.5.6.7.8.9.10 | 87-021-846-01 | Slide volume, 250kΩ-W(EQUALIZER VOL) | |
| SW1 | 87-031-692-01 | Push-switch(POWER) | |
| SW2.3.4.5.6 | 87-031-771-01 | Tact switch(TUNER, TAPE, PHONE, CD, AUX) | |
| SW7.8.9 | 87-031-815-01 | Push-switch(MUT. DSL, REC OUT) | |
| PIN2.3 | 87-049-366-01 | Pin, 20P | *** |
| < Capacitor > | | | |
| C73.74.75.76.80 | 87-015-698-01 | 4.7μF 50V Electrolytic | |
| < GRAPHIC CIRCUIT BOARD SECTION > | | | |
| PCB-E | * | GRAPHIC circuit board | |
| Q11.12.13.14.15.16.17.18.19.20.21.22.23.24 | 89-318-155-01 | Transistor, 2SC1815(GR) | |
| < Capacitors > | | | |
| C43.44 | 87-015-697-01 | 3.3μF 50V Electrolytic | |
| C47.48 | 87-015-695-01 | 1μF 50V Electrolytic | |
| C51.52 | 87-015-693-01 | 0.33μF 50V Electrolytic | |
| C55.56 | 87-015-691-01 | 0.1μF 50V Electrolytic | |
| C57.58 | 87-018-044-01 | 1000pF Ceramic | |
| C61.62 | 87-018-040-81 | 470pF Ceramic | |
| C65.66 | 87-018-035-81 | 180pF Ceramic SL | |

| Symbol No. | Part No. | Description | Remark |
|---------------------------------|---------------|---|--------|
| < POWER CIRCUIT BOARD SECTION > | | | |
| △PCB-F | * | Power circuit board (H, HB models only) | |
| △PCB-F | * | Power circuit board (UB, E, EB, K, KB, G models only) | |
| △F1 | 87-035-256-01 | Fuse, 3.15A (H, HB models only) | |
| △F1 | 87-035-302-01 | Fuse, 3.15A (UB model only) | |
| △F1 | 87-035-224-01 | Fuse, 1.6A "T" (E, EB, K, KB, G models only) | |
| △F2 | 87-035-252-01 | Fuse, 1.6A (H, HB models only) | |
| △S1 | 87-031-586-01 | Rotary switch(VOLTAGE SELECTOR) (H, HB models only) | |
| | 87-098-045-01 | Fuse label 3.15A (H, HB, UB models only) | |
| | 87-098-018-01 | Fuse label 1.6A "T" (E, EB, K, KB, G models only) | *** |
| | 87-098-042-01 | Fuse label 1.6A (H, HB models only) | *** |
| | 87-033-147-01 | Fuse clamp | |
| < MISCELLANEOUS > | | | |
| △T1 | 82-798-617-01 | Power transformer (H, HB models only) | |
| △T1 | 82-798-618-01 | Power transformer (UB models only) | |
| △T1 | 82-798-619-01 | Power transformer (E, EB models only) | |
| △T1 | 82-798-620-01 | Power transformer (K, KB, G models only) | |
| △ | 87-034-962-01 | AC power cord (H model only) | |
| △ | 87-034-992-01 | AC power cord (HB model only) | |
| △ | 87-034-578-01 | AC power cord (UB model only) | |
| △ | 82-788-674-01 | AC power cord (E, EB models only) | |
| △ | 87-034-708-01 | AC power cord (K, KB, G models only) | |
| △ | 87-085-184-01 | Cord bushing (H, HB models only) | |
| △ | 87-085-189-01 | Cord bushing (UB model only) | |
| △ | 87-085-185-01 | Cord bushing (E, EB, KB, G models only) | |

Note; Combination Circuit Board
The parts on the electrical parts list which are indicated by an asterisk (*) are supplied as one single combined circuit board. Therefore, they will not be supplied separately. If this becomes necessary, please order the entire circuit board.

Combination circuit board A 82-798-602-11
PCB-A 82-798-604-11
PCB-B 82-798-605-11
PCB-F 82-798-608-11 (H, HB models only)
PCB-F 82-798-607-11 (U, E, EB, K, KB, G models only)

Combination circuit board B 82-798-609-11
PCB-C 82-798-612-11
PCB-D 82-798-610-11
PCB-E 82-798-611-11

ELECTRICAL MAIN PARTS LIST

"★★★" shows unavailable Repair Part.

| Symbol No. | Part No. | Description | Remark |
|---------------------------------|---------------|--|--------|
| < TUNER CIRCUIT BOARD SECTION > | | | |
| PCB-A | * | Tuner circuit board | |
| IC1 | 87-020-140-01 | IC. L78M12 | |
| IC2 | 87-027-993-01 | IC. μ PC1167C2 | |
| IC3 | 87-027-996-01 | IC. LA1245 | |
| IC4 | 87-020-139-01 | IC. LA3390 | |
| IC5,6 | 87-027-840-01 | IC. M54519P | |
| Q1 | 87-026-165-01 | FET. 3SK73(GR) | |
| Q2,3 | 89-319-233-01 | Transistor. 2SC1923(O) | |
| Q4,5,15 | 89-501-615-01 | FET. 2SK161(GR) | |
| Q6 | 89-318-154-01 | Transistor. 2SC1815(Y) | |
| Q7,12 | 89-502-464-01 | FET. 2SK246(Y) | |
| Q8,9 | 89-318-155-01 | Transistor. 2SC1815(GR) | |
| Q10 | 89-110-154-01 | Transistor. 2SA1015(Y) | |
| Q11,13 | 89-320-011-01 | Transistor. 2SC2001(K) | |
| Q14 | 89-318-464-01 | Transistor. 2SC1846(R) | |
| Q16,17 | 89-320-011-01 | Transistor. 2SC2001(K) (E. EB. K. KB models only) | |
| D1,2,3,4 | 87-027-900-01 | Diode. 1SV147 | |
| D101,102,104,105,106 | 87-027-097-01 | Diode. 1S1555 | |
| D103 | 87-027-376-01 | Diode. 1B4B41 | |
| D107 | 82-769-617-01 | Diode. KV-1236Z-2 | |
| D108 | 87-027-097-01 | Diode. 1S1555 (E. EB. K. KB models only) | |
| L1 | 82-791-630-01 | FM antenna coil | |
| L2 | 82-791-631-01 | FM antenna coil | |
| L3,5,6 | 82-791-629-01 | FM antenna coil | |
| L4 | 82-791-627-01 | FM antenna coil | |
| L7,9 | 87-005-151-01 | Choke coil. 2.2 μ H | |
| L8 | 82-791-633-01 | FM OSC coil | |
| TC1,2 | 87-011-142-01 | Trimmer. 10P | |
| TC201 | 87-011-108-01 | Trimmer. 8P | |
| TC202 | 87-011-131-01 | Trimmer. 30P (E. EB. K. KB models only) | |
| LPF1,2 | 82-794-684-01 | Low-pass filter | |
| CF1,2,3 | 82-785-669-01 | Ceramic filter. MA8H(R) | |
| CF4 | 82-795-675-01 | Ceramic filter. MA. 450(129) | |
| CF5 | 82-794-670-01 | Ceramic filter. BFU450C4N | |
| T1 | 82-794-683-01 | FM IFT. 6T | |
| T2 | 82-794-695-01 | FM quad coil(P) | |
| T3 | 82-794-696-01 | FM quad coil(S) | |
| T4 | 82-794-699-01 | MW antenna coil | |
| T5 | 82-794-687-01 | MW OSC coil | |
| T7 | 82-794-700-01 | LW antenna coil (E. EB. K. KB models only) | |
| T8 | 82-794-688-01 | LW OSC coil (E. EB. K. KB models only) | |
| J1,2 | 82-799-632-01 | Antenna terminal ass'y (OUTPUT. REMOTE. AM ANT. FM ANT) (H. HB. UB. G models only) | |
| J1,2 | 82-799-631-01 | Antenna terminal ass'y (OUTPUT. REMOTE. AM ANT. FM ANT) (E. EB. models only) | |
| J1,2 | 82-799-634-01 | Antenna terminal ass'y (OUTPUT. REMOTE. AM ANT. FM ANT) (K. KB models only) | |
| SW20 | 82-795-624-01 | Slide switch (AM STEP) (H. HB. G models only) | |
| SFR1 | 87-021-742-01 | Semi-fixed resistor. 10k Ω -B | ★★★ |
| SFR2 | 87-021-743-01 | Semi-fixed resistor. 22k Ω -B | ★★★ |
| SFR3 | 87-021-689-01 | Semi-fixed resistor. 47k Ω -B | ★★★ |
| CN1 | 87-049-275-01 | Pin. 5P | |
| CN2,3 | 87-032-967-01 | Pin. 7P | |
| CN4,5 | 87-032-966-01 | Pin. 6P | |

| Symbol No. | Part No. | Description | Remark |
|--|-------------------------------|---|--------|
| < Capacitors > | | | |
| C1,11 | 87-018-014-01 | 18pF Ceramic | |
| C2,8,10,14,15,16,17,18,101,102,103,105,106,107,111,132,133,144,146,147,205,209,211,212,217,219,221 | 87-018-047-01 | 0.01 μ F 16V Ceramic | |
| C3,6 | 87-018-010-01 | 12pF Ceramic | |
| C4 | 87-018-002-01 | 2.2pF Ceramic | |
| C5 | 87-018-005-01 | 4.7pF Ceramic | |
| C7 | 87-018-032-01 | 100pF Ceramic | |
| C9 | 87-018-001-01 | 1pF Ceramic | |
| C12 | 87-018-026-01 | 56pF Ceramic | |
| C104,201,214,215 | 87-012-105-01 | 0.022 μ F Ceramic | |
| C110 | 87-018-038-01 | 330pF Ceramic | |
| C116 | 87-014-057-01 | 1000pF PP | |
| C118,120 | 87-014-056-01 | 910pF PP | |
| C124,126 | 87-018-045-01 | 2200pF Ceramic | |
| C131,145,213,218 | 87-018-044-01 | 1000pF Ceramic | |
| C139 | 87-010-043-01 | 47 μ F 35V Electrolytic (UB model only) | |
| C140 | 87-010-045-01 | 100 μ F 25V Electrolytic (UB model only) | |
| C203 | 87-018-018-01 | 27pF Ceramic (H. HB. UB. G models only) | |
| C203 | 87-018-017-01 | 24pF Ceramic (E. EB. K. KB models only) | |
| C204 | 87-014-049-01 | 470pF PP | |
| C223 | 87-014-049-01 | 470pF PP (E. EB. K. KB models only) | |
| C224 | 87-018-030-01 | 82pF Ceramic (E. EB. K. KB models only) | |
| < CONTROL CIRCUIT BOARD SECTION > | | | |
| PCB-B | * | Control circuit board | |
| ① IC1 | 87-020-232-01 (87-027-997-01) | IC. μ PD1704C-026 (IC. μ PD1704C-018) | |
| IC2 | 87-027-994-01 | IC. AN6873 | |
| IC3 | 87-020-129-01 | IC. LB1423 | |
| IC4 | 87-027-752-01 | IC. 553AC | |
| ① IC5,6 | 87-020-096-01 | IC. M4066BP | |
| Q301 | 89-318-154-01 | Transistor. 2SC1815(Y) | |
| Q302,303 | 89-110-154-01 | Transistor. 2SA1015(Y) | |
| Q304 | 89-110-154-01 | Transistor. 2SA1015(Y) (H. HB. UB. G models only) | |
| D301 | 87-020-130-01 | LED. GL-9PG24 (POWER) | |
| D302,303,304,305,306 | 87-020-127-01 | LED. GL-9PR24 (SIGNAL 1~5) | |
| D307 | 87-020-152-01 | LED. GL-9PG24 (FM STEREO) | |
| D308,309 | 87-020-153-01 | LED. GL-9PG26 (FM MUTE. HI-BLEND) | |
| D310,311,312,313,314,315,316,317,318,319,320,321,322,328,329,330 | 87-027-097-01 | Diode. 1S1555 | |

| Symbol No. | Part No. | Description | Remark |
|---------------------------------------|---------------|--|--------|
| D326,327. | 87-027-097-01 | Diode. 1S1555 (H. HB. UB. G models only) | |
| FL | 82-795-620-01 | FL. 9MT21ZK | |
| X1 | 82-769-613-01 | Crystal. 4.5M | |
| TC301 | 87-011-131-01 | Trimmer. 30P | |
| SW1,2,3,4,5,6,7,8,9,10,11,12,13,14,15 | 87-031-771-01 | Tact switch (PRESET. STATION 1~6. MEMORY/TIME SET. TIME/FREQ. SLEEP, TIMER. STANDBY. FM. AM. DOWN. UP) | |
| SW13,16 | 87-031-771-01 | Tact switch (MW. LW) (E. EB. K. KB models only) | |
| SW17,18 | 87-031-760-01 | Push switch (FM MUTE. HI-BLEND) | |
| SW19 | 87-031-750-01 | Push switch (POWER) | |
| < Capacitors > | | | |
| C301 | 87-015-990-01 | 2200 μ F 6.3V Electrolytic | |
| C302 | 87-018-020-01 | 33pF Ceramic | |
| C300,305,307,308,309,310,318,319,320 | 87-018-047-01 | 0.01 μ F 16V Ceramic | |
| C311,312,313,314,315,316,317 | 87-018-040-01 | 470pF Ceramic | |

< POWER CIRCUIT BOARD SECTION > = "E. EB. K. KB. G" models

| | | |
|----------|---------------|------------------------------------|
| △ PCB-C | 82-799-613-01 | Power circuit board |
| △ J3,4,5 | 87-049-414-01 | AC outlet (E. EB models only) |
| △ J3,4,5 | 87-049-416-01 | AC outlet (K. KB. G models only) |
| △ F1 | 87-035-139-01 | Fuse. "T" 2.5A (E. EB models only) |
| △ | 87-033-147-01 | Fuse clamp (E. EB models only) |

< MISCELLANEOUS >

| | | |
|----------|---------------|--|
| △ T1 | 82-799-604-01 | Power transformer (H. HB models only) |
| △ T1 | 82-799-602-01 | Power transformer (UB model only) |
| △ T1 | 82-799-603-01 | Power transformer (E. EB. K. KB. G models only) |
| △ SW21 | 87-031-617-01 | Slide switch (AC VOLTAGE SELECTOR) (H. HB models only) |
| △ | 87-034-956-01 | AC power cord (H model only) |
| △ | 87-034-958-01 | AC power cord Black (HB model only) |
| △ | 87-034-578-01 | AC power cord Black (UB model only) |
| △ | 87-034-877-01 | AC power cord (E. EB models only) |
| △ | 87-034-975-01 | AC power cord (K. KB models only) |
| △ | 87-034-892-01 | AC power cord (G model only) |
| △ J3,4,5 | 87-049-365-01 | AC outlet 3P UNSW (H. HB. UB models only) |
| △ | 87-085-184-01 | Cord bushing (H. HB. UB models only) |
| △ | 87-085-185-01 | Cord bushing (E. EB. K. KB. G models only) |

Note; Combination Circuit Board

The parts on the electrical parts list which are indicated by an asterisk (*) are supplied as one single combined circuit board. Therefore, they will not be supplied separately. If this becomes necessary, please order the entire circuit board.

Combination circuit board 82-799-610-21

PCB-A 82-799-611-21

PCB-B 82-799-612-21

Parts unavailable Repair Part.

| Remark | Symbol No. | Part No. | Description | Remark |
|--------|--|----------------------------------|--|--------|
| | | | < Capacitors > | |
| | C1.11 | 87-018-014-01 | 1 8 pF Ceramic | |
| | C2.8.10.14. 15.16.17.18. 101.102.103. 105.106.107. 111.132.133. 144.146.147. 205.209.211. 212.217.219. 221 | 87-018-047-01 | 0.0 1 μF 1 6 V Ceramic | |
| | C3.6 | 87-018-010-01 | 1 2 pF Ceramic | |
| | C4 | 87-018-002-01 | 2.2 pF Ceramic | |
| | C5 | 87-018-005-01 | 4.7 pF Ceramic | |
| | C7 | 87-018-032-01 | 1 0 0 pF Ceramic | |
| | C9 | 87-018-001-01 | 1 pF Ceramic | |
| | C12 | 87-018-026-01 | 5 6 pF Ceramic | |
| | C104.201.214. 215 | 87-012-105-01 | 0.0 2 2 μF Ceramic | |
| | C110 | 87-018-038-01 | 3 3 0 pF Ceramic | |
| | C116 | 87-014-057-01 | 1 0 0 0 pF PP | |
| | C118.120 | 87-014-056-01 | 9 1 0 pF PP | |
| | C124.126 | 87-018-045-01 | 2 2 0 0 pF Ceramic | |
| | C131.145.213. 218 | 87-018-044-01 | 1 0 0 0 pF Ceramic | |
| | C139 | 87-010-043-01 | 4 7 μF 3 5 V Electrolytic (UB model only) | |
| | C140 | 87-010-045-01 | 1 0 0 μF 2 5 V Electrolytic (UB model only) | |
| | C203 | 87-018-018-01 | 2 7 pF Ceramic (H, HB, UB, G models only) | |
| | C203 | 87-018-017-01 | 2 4 pF Ceramic (E, EB, K, KB models only) | |
| | C204 | 87-014-049-01 | 4 7 0 pF PP | |
| | C223 | 87-014-049-01 | 4 7 0 pF PP (E, EB, K, KB models only) | |
| | C224 | 87-018-030-01 | 8 2 pF Ceramic (E, EB, K, KB models only) | |
| | | | < CONTROL CIRCUIT BOARD SECTION > | |
| | PCB-B | * | Control circuit board | |
| | ⊕ IC1 | 87-020-232-01 (87-027-997-01) | 1 C. μPD1704C-026 (1 C. μPD1704C-018) | |
| | IC2 | 87-027-994-01 | 1 C. AN6873 | |
| | IC3 | 87-020-129-01 | 1 C. LB1423 | |
| | IC4 | 87-027-752-01 | 1 C. 553AC | |
| | ⊕ IC5.6 | 87-020-096-01 | 1 C. M4066BP | |
| | Q301 | 89-318-154-01 | Transistor, 2SC1815(Y) | |
| | Q302.303 | 89-110-154-01 | Transistor, 2SA1015(Y) | |
| | Q304 | 89-110-154-01 | Transistor, 2SA1015(Y) (H, HB, UB, G models only) | |
| | D301 | 87-020-130-01 | LED, GL-9PG24 (POWER) | |
| | D302.303.304. 305.306 | 87-020-127-01 | LED, GL-9PR24 (SIGNAL 1~5) | |
| | D307 | 87-020-152-01 | LED, GL-9PG24 (FM STEREO) | |
| | D308.309 | 87-020-153-01 | LED, GL-9PG26 (FM MUTE, HI-BLEND) | |
| | D310.311.312. 313.314.315. 316.317.318. 319.320.321. 322.328.329. 330 | 87-027-097-01 | Diode, 1S1555 | |

★ ★ ★
★ ★ ★
★ ★ ★

| Symbol No. | Part No. | Description | Remark |
|---|---------------|---|--------|
| D326.327. | 87-027-097-01 | Diode, 1S1555 (H, HB, UB, G models only) | |
| FL | 82-795-620-01 | FL, 9MT21ZK | |
| X1 | 82-769-613-01 | Crystal, 4.5M | |
| TC301 | 87-011-131-01 | Trimmer, 30P | |
| SW1.2.3.4.5. 6.7.8.9. 10.11.12. 13.14.15 | 87-031-771-01 | Tact switch (PRESET, STATION 1~6, MEMORY/TIME SET, TIME/FREQ. SLEEP, TIMER, STANDBY, FM, AM, DOWN, UP) | |
| SW13.16 | 87-031-771-01 | Tact switch (MW, LW) (E, EB, K, KB models only) | |
| SW17.18 | 87-031-760-01 | Push switch (FM MUTE, HI-BLEND) | |
| SW19 | 87-031-750-01 | Push switch (POWER) | |
| | | < Capacitors > | |
| C301 | 87-015-990-01 | 2 2 0 0 μF 6.3 V Electrolytic | |
| C302 | 87-018-020-01 | 3 3 pF Ceramic | |
| C300.305.307. 308.309.310. 318.319.320 | 87-018-047-01 | 0.0 1 μF 1 6 V Ceramic | |
| C311.312.313. 314.315.316. 317 | 87-018-040-01 | 4 7 0 pF Ceramic | |
| | | < POWER CIRCUIT BOARD SECTION > = "E, EB, K, KB, G" models | |
| Δ PCB-C | 82-799-613-01 | Power circuit board | |
| Δ J3.4.5 | 87-049-414-01 | AC outlet (E, EB models only) | |
| Δ J3.4.5 | 87-049-416-01 | AC outlet (K, KB, G models only) | |
| Δ F1 | 87-035-139-01 | Fuse, "T" 2.5 A (E, EB models only) | |
| Δ | 87-033-147-01 | Fuse clamp (E, EB models only) | |
| | | < MISCELLANEOUS > | |
| Δ T1 | 82-799-604-01 | Power transformer (H, HB models only) | |
| Δ T1 | 82-799-602-01 | Power transformer (UB model only) | |
| Δ T1 | 82-799-603-01 | Power transformer (E, EB, K, KB, G models only) | |
| Δ SW21 | 87-031-617-01 | Slide switch (AC VOLTAGE SE- LECTOR) (H, HB models only) | |
| Δ | 87-034-956-01 | AC power cord (H model only) | |
| Δ | 87-034-958-01 | AC power cord Black (HB model only) | |
| Δ | 87-034-578-01 | AC power cord Black (UB model only) | |
| Δ | 87-034-877-01 | AC power cord (E, EB models only) | |
| Δ | 87-034-975-01 | AC power cord (K, KB models only) | |
| Δ | 87-034-892-01 | AC power cord (G model only) | |
| Δ J3.4.5 | 87-049-365-01 | AC outlet 3P UNSW (H, HB, UB models only) | |
| Δ | 87-085-184-01 | Cord bushing (H, HB, UB models only) | |
| Δ | 87-085-185-01 | Cord bushing (E, EB, K, KB, G models only) | |

Note: Combination Circuit Board

The parts on the electrical parts list which are indicated by an asterisk (*) are supplied as one single combined circuit board. Therefore, they will not be supplied separately. If this becomes necessary, please order the entire circuit board.

Combination circuit board 82-799-610-21**PCB-A 82-799-611-21****PCB-B 82-799-612-21**

ELECTRICAL MAIN PARTS LIST

"★★★" shows unavailable Repair Part.

| Symbol No. | Part No. | Description | Remark |
|---|---------------|---|--------|
| < MAIN CIRCUIT BOARD SECTION > | | | |
| PCB-A | * | Main circuit board | |
| IC1 | 87-027-925-01 | IC, M5220 | |
| IC2 | 87-027-978-01 | IC, TC9152P | |
| IC3 | 87-020-145-01 | IC, M54563 | |
| IC4 | 87-020-216-01 | IC, M51133P | |
| IC5 | 87-027-895-01 | IC, M5218L | |
| ① IC6 | 87-027-828-01 | IC, TC9134P | |
| ① IC7,8,9 | 87-027-723-01 | IC, TC4049BP | |
| IC10 | 87-027-948-01 | IC, M54514AP | |
| Q1,2 | 89-318-156-01 | Transistor, 2SC1815(BL) | |
| Q3,4,5,6,9, 10,11,12,13, 14,17,18,20, 24,55,56,57, 58,61,62 | 89-318-155-01 | Transistor, 2SC1815(GR) | |
| Q7 | 89-413-023-01 | Transistor, 2SD1302S | |
| Q15,16 | 89-320-011-01 | Transistor, 2SC2001K | |
| Q19,23 | 89-414-064-51 | Transistor, 2SD1406(Y, GR) | |
| Q21 | 89-107-335-01 | Transistor, 2SA733K | |
| Q22 | 89-210-154-51 | Transistor, 2SB1015(Y, GR) | |
| Q25 | 89-502-464-01 | FET, 2SK246Y | |
| Q59,60 | 89-110-155-01 | Transistor, 2SA1015(GR) | |
| D1,40 | 87-027-606-01 | Zener diode, HZ7C2L | |
| D2,3,4,5,6,7, 8,9,10,11, 12,14,15,16, 17,18,19,21, 22,23,24,25, 26,29,30,32, 41,42,64 | 87-027-097-01 | Diode, 1S1555 | |
| D13,31,63 | 87-027-332-01 | Zener diode, HZ6B1L | |
| D28 | 87-027-416-01 | Zener diode, HZ3C2 | |
| D34 | 87-027-376-01 | Diode, 1B4B41 | |
| D35,37,38 | 87-027-365-01 | Diode, S5277B | |
| D36 | 87-027-449-01 | Zener diode, HZ15-3L | |
| D39 | 87-027-364-01 | Zener diode, HZ12A3L | |
| J1,2,3,4,5,6, 7,8,9 | 81-731-614-01 | Pin jack ass'y(PHONO, CD, AUX, REC OUT, SIGNAL EARTH, PLAYER SYNC) | |
| J10,11,12,13, 14,15,16 | 81-731-616-01 | DIN jack ass'y(TUNER, REC/PLAY, CONTROL, TUNER, CONTROL, DECK CONTROL, PLAYER START/CUT, OUTPUT) | |
| X1 | 87-008-246-01 | Ceramic resonator CSB455EB | ★★★ |
| PIN1 | 87-032-897-01 | Pin, 3P | ★★★ |
| PIN2 | 87-049-276-01 | Pin, 6P | ★★★ |
| PIN3 | 87-032-903-01 | Pin, 3P | ★★★ |
| PIN4,7 | 87-049-277-01 | Pin, 7P | ★★★ |
| PIN5,6 | 87-049-278-01 | Pin, 8P | ★★★ |
| < Capacitors > | | | |
| C1,2 | 87-018-036-01 | 220pF Ceramic | |
| C3,4 | 87-015-953-01 | 4.7μF 35V Electrolytic LL | |
| C5,6,25,26 | 87-018-024-01 | 47pF Ceramic | |
| C52,53 | 87-018-032-01 | 100pF Ceramic | |
| C54,55,56 | 87-015-421-01 | 0.22μF 25V Aluminum solid | |
| C73,149 | 87-018-047-01 | 0.01μF 16V Ceramic | |
| < FRONT CIRCUIT BOARD SECTION > | | | |
| PCB-B | * | Front circuit board | |
| Q41,42,43,44, 45,46,47,48 | 89-318-155-01 | Transistor, 2SC1815(GR) | |

| Symbol No. | Part No. | Description | Remark |
|--|---------------|--|--------|
| 49,50,51,52, 53,54 | | < Capacitors > | |
| C89,90 | 87-015-697-01 | 3.3μF 50V Electrolytic | |
| C93,94 | 87-015-695-01 | 1μF 50V Electrolytic | |
| C97,98 | 87-015-693-01 | 0.33μF 50V Electrolytic | |
| C101,102 | 87-015-691-01 | 0.1μF 50V Electrolytic | |
| C103,104 | 87-018-044-01 | 1000pF Ceramic | |
| C107,108 | 87-018-040-01 | 470pF Ceramic | |
| C111,112 | 87-018-035-01 | 180pF Ceramic | |
| < GEQ CIRCUIT BOARD SECTION > | | | |
| PCB-C | * | GEQ circuit board | |
| IC13 | 87-027-895-01 | IC, M5218L | |
| D50,51,52,53, 54 | 87-027-097-01 | Diode, 1S1555 | |
| D55,56,57,58, 59 | 87-027-543-01 | LED, LN317GP(TAPE, TUNER, PHONO, CD, AUX) | |
| D60,61,62 | 87-020-128-01 | LED, GL-2PR2(DSL, REC OUT, MUTING) | |
| VR3,4,5,6,7, 8,9 | 87-021-846-01 | Slide volume, 250kΩ-W(GRAPHIC EQUALIZER: 40Hz, 125Hz, 330Hz, 1kHz, 2.5kHz, 6.3kHz, 15kHz) | |
| SW1 | 87-031-692-01 | Push-switch(POWER) | ★★★ |
| SW2,3,4 | 81-731-635-01 | Push-switch(MUTING, DSL, REC OUT) | ★★★ |
| SW5,6,7,8,9 | 87-031-771-01 | Tact switch(TAPE, TUNER, PHONO, CD, AUX) | ★★★ |
| CON2 | 81-731-621-01 | Connector ass'y, 6P | |
| CON4 | 81-731-652-01 | Connector ass'y, 7P | |
| CON5 | 81-731-622-01 | Connector ass'y, 8P | |
| < Capacitors > | | | |
| C81,82,85,86 | 87-015-698-01 | 4.7μF 50V Electrolytic | |
| C83,84 | 87-015-681-01 | 10μF 16V Electrolytic | |
| < MIC CIRCUIT BOARD SECTION > | | | |
| PCB-D | * | MIC circuit board | |
| IC12 | 87-027-895-01 | IC, M5218L | |
| VR1 | 87-021-848-01 | Volume, 50kΩ-B(MIC VOL) | |
| VR2 | 81-731-636-01 | Volume, 100kΩ-RW(BALANCE) | |
| J17 | 87-049-353-01 | Jack, 6.3φ W/split(MIX MIC) | |
| CON6 | 81-731-622-01 | Connector ass'y, 8P | ★★★ |
| < Capacitors > | | | |
| C133 | 87-018-042-01 | 680pF Ceramic | |
| C135 | 87-018-044-01 | 1000pF Ceramic | |
| < LED CIRCUIT BOARD SECTION > | | | |
| PCB-E | * | LED circuit board | |
| IC11 | 87-020-217-01 | IC, BA684A | |
| D70,71,72,73 74,75,76,77 | 87-020-219-01 | LED, GL-3PG2(LEVEL INDICATOR) | |
| D78 | 87-020-218-01 | LED, GL-3PR2(RECEIVED) | |
| SW10,11 | 87-031-771-01 | Tact switch(VOLUME DOWN, VOLUME UP) | |
| CON7 | 81-731-620-01 | Connector ass'y, 7P | ★★★ |

| Symbol No. | Part No. | Description | Remark |
|--|---------------|--|--------|
| < Capacitor > | | | |
| C130 | 87-018-047-01 | 0.01μF 16V Ceramic | |
| < SWITCH CIRCUIT BOARD SECTION > = "H, HB" models | | | |
| Δ PCB-F | * | Switch circuit board | |
| Δ SW12 | 87-031-551-01 | Rotary switch(AC VOLTAGE SELECTOR) | |
| Δ J18 | 87-049-017-01 | AC outlet | ★★★ |
| Δ | 82-304-743-01 | 1P terminal | |
| < FUSE CIRCUIT BOARD SECTION > = "E, EB" models | | | |
| Δ PCB-G | 81-731-644-11 | Fuse circuit board | |
| Δ F1 | 87-035-139-01 | Fuse, "T" 2.5A | ★★★ |
| Δ | 87-033-147-01 | Fuse clamp | |
| Δ J18 | 87-049-414-01 | AC outlet | ★★★ |
| Δ | 82-304-743-01 | 1P terminal | |
| < COMMAND CIRCUIT BOARD SECTION > | | | |
| PCB-H | 81-731-655-01 | Command circuit board | |
| IC1 | 87-027-831-01 | TC-9132P | |
| Q1 | 89-206-412-01 | Transistor, 2SB641(R) | |
| Q2 | 89-406-372-01 | Transistor, 2SD637(R) | |
| D1,2 | 87-027-849-01 | LED, LN66 (LED SE303A) | |
| X1 | 87-008-246-01 | Ceramic resonator, CS-B455EB1 | |
| < KEY SWITCH CIRCUIT BOARD SECTION > | | | |
| PCB-I | 81-731-656-01 | Key switch circuit board | |
| SW4,5,6,7, 11,13,14, 17,18,19, 20,21,22, 23,24,25, 26,27,28, 30,31 | 86-198-601-01 | Rubber switch [TAPE, PHONO, AUX, CD, REV PLAY(◀), START/ CUT, PLAY(▶), PAUSE, STOP, TUNER REC, VOLUME UP(▶), VOLUME DOWN(◀), FM, TUNING DOWN, UP, LW (EB, K, KB models only) ◀◀, ▶▶, MUTING, POWER, AM(MW)] | |
| < MISCELLANEOUS > | | | |
| Δ T1 | 81-731-606-01 | Power transformer(H, HB models only) | |
| Δ T1 | 81-731-607-01 | Power transformer(UB model only) | |
| Δ T1 | 81-731-608-01 | Power transformer(E, EB models only) | |
| Δ T1 | 81-731-609-01 | Power transformer(K, KB, G models only) | |
| Δ | 87-034-962-01 | AC power cord H50(H, HB models only) | |
| Δ | 87-034-578-01 | AC power cord U black(UB model only) | |
| Δ | 82-788-674-01 | AC power cord E50(E, EB models only) | |
| Δ | 82-788-673-01 | AC power cord K50(K, KB, G models only) | |
| Δ J18 | 87-049-017-01 | AC outlet(UB model only) | |
| Δ J18 | 87-032-996-01 | AC outlet(K, KB, G models only) | |
| Δ | 87-085-184-01 | Cord bushing(H, HB, UB models only) | |
| Δ | 87-085-185-01 | Cord bushing(E, EB, K, KB, G models only) | |
| CPI, CON3 | 81-731-633-01 | Photo transistor amp. unit EUR-3619A | |

"★★★" shows unavailable Repair Part.

| Description | Remark | Symbol No. | Part No. | Description | Remark |
|-------------|--------|-----------------------------|---------------|--|--------|
| BOARD N> | | 49.50.51.52. 53.54 | | <Capacitors> | |
| | | C89.90 | 87-015-697-01 | 3.3μF 50V Electrolytic | |
| | | C93.94 | 87-015-695-01 | 1μF 50V Electrolytic | |
| | | C97.98 | 87-015-693-01 | 0.33μF 50V Electrolytic | |
| | | C101.102 | 87-015-691-01 | 0.1μF 50V Electrolytic | |
| | | C103.104 | 87-018-044-01 | 1000pF Ceramic | |
| | | C107.108 | 87-018-040-01 | 470pF Ceramic | |
| | | C111.112 | 87-018-035-01 | 180pF Ceramic | |
| | | <GEQ CIRCUIT BOARD SECTION> | | | |
| | | PCB-C | * | GEQ circuit board | |
| | | IC13 | 87-027-895-01 | IC, M5218L | |
| | | D50.51.52.53. 54 | 87-027-097-01 | Diode, 1S1555 | |
| | | D55.56.57.58. 59 | 87-027-543-01 | LED, LN317GP(TAPE, TUNER, PHONO, CD, AUX) | |
| | | D60.61.62 | 87-020-128-01 | LED, GL-2PR2(DSL, REC OUT, MUTING) | |
| | | VR3.4.5.6.7. 8.9 | 87-021-846-01 | Slide volume, 250kΩ-W(GRAPHIC EQUALIZER: 40Hz, 125Hz, 330Hz, 1kHz, 2.5kHz, 6.3kHz, 15kHz) | |
| | | SW1 | 87-031-692-01 | Push-switch(POWER) | |
| | | SW2.3.4 | 81-731-635-01 | Push-switch(MUTING, DSL, REC OUT) | |
| | | SW5.6.7.8.9 | 87-031-771-01 | Tact switch(TAPE, TUNER, PHONO, CD, AUX) | |
| | | CON2 | 81-731-621-01 | Connector ass'y, 6P | ★★★ |
| | | CON4 | 81-731-652-01 | Connector ass'y, 7P | ★★★ |
| | | CON5 | 81-731-622-01 | Connector ass'y, 8P | ★★★ |
| | | <Capacitors> | | | |
| | | C81.82.85.86 | 87-015-698-01 | 4.7μF 50V Electrolytic | |
| | | C83.84 | 87-015-681-01 | 10μF 16V Electrolytic | |
| | | <MIC CIRCUIT BOARD SECTION> | | | |
| | | PCB-D | * | MIC circuit board | |
| | | IC12 | 87-027-895-01 | IC, M5218L | |
| | | VR1 | 87-021-848-01 | Volume, 50kΩ-B(MIC VOL) | |
| | | VR2 | 81-731-636-01 | Volume, 100kΩ-RW(BALANCE) | |
| | | J17 | 87-049-353-01 | Jack, 6.3φ W/split(MIX MIC) | |
| | | CON6 | 81-731-622-01 | Connector ass'y, 8P | ★★★ |
| | | <Capacitors> | | | |
| | | C133 | 87-018-042-01 | 680pF Ceramic | |
| | | C135 | 87-018-044-01 | 1000pF Ceramic | |
| | | <LED CIRCUIT BOARD SECTION> | | | |
| | | PCB-E | * | LED circuit board | |
| | | IC11 | 87-020-217-01 | IC, BA684A | |
| | | D70.71.72.73 74.75.76.77 | 87-020-219-01 | LED, GL-3PG2(LEVEL INDICATOR) | |
| | | D78 | 87-020-218-01 | LED, GL-3PR2(RECEIVED) | |
| | | SW10.11 | 87-031-771-01 | Tact switch(VOLUME DOWN, VOL- UME UP) | |
| | | CON7 | 81-731-620-01 | Connector ass'y, 7P | ★★★ |

| Symbol No. | Part No. | Description | Remark |
|--|---------------|--|--------|
| | | <Capacitor> | |
| C130 | 87-018-047-01 | 0.01μF 16V Ceramic | |
| <SWITCH CIRCUIT BOARD SECTION> = "H, HB" models | | | |
| ΔPCB-F | * | Switch circuit board | |
| ΔSW12 | 87-031-551-01 | Rotary switch(AC VOLTAGE SE- LECTOR) | |
| ΔJ18 | 87-049-017-01 | AC outlet | |
| Δ | 82-304-743-01 | 1P terminal | ★★★ |
| <FUSE CIRCUIT BOARD SECTION> = "E, EB" models | | | |
| ΔPCB-G | 81-731-644-11 | Fuse circuit board | |
| ΔF1 | 87-035-139-01 | Fuse, "T" 2.5A | |
| Δ | 87-033-147-01 | Fuse clamp | ★★★ |
| ΔJ18 | 87-049-414-01 | AC outlet | |
| Δ | 82-304-743-01 | 1P terminal | ★★★ |
| <COMMAND CIRCUIT BOARD SECTION> | | | |
| PCB-H | 81-731-655-01 | Command circuit board | |
| IC1 | 87-027-831-01 | TC-9132P | |
| Q1 | 89-206-412-01 | Transistor, 2SB641(R) | |
| Q2 | 89-406-372-01 | Transistor, 2SD637(R) | |
| D1.2 | 87-027-849-01 | LED, LN66 (LED SE303A) | |
| X1 | 87-008-246-01 | Ceramic resonator, CS-B455EB1 | |
| <KEY SWITCH CIRCUIT BOARD SECTION> | | | |
| PCB-I | 81-731-656-01 | Key switch circuit board | |
| SW4.5.6.7. 11.13.14. 17.18.19. 20.21.22. 23.24.25. 26.27.28. 30.31 | 86-198-601-01 | Rubber switch [TAPE, PHONO, AUX, CD, REV PLAY(◀), START/ CUT, PLAY(▶), PAUSE, STOP, TUNER REC, VOLUME UP(▶), VOLUME DOWN(◀), FM, TUNING DOWN, UP, LW (EB, K, KB models only) ◀◀, ▶▶, MUTING, POWER, AM(MW)] | |
| <MISCELLANEOUS> | | | |
| ΔT1 | 81-731-606-01 | Power transformer(H, HB models only) | |
| ΔT1 | 81-731-607-01 | Power transformer(UB model only) | |
| ΔT1 | 81-731-608-01 | Power transformer(E, EB models only) | |
| ΔT1 | 81-731-609-01 | Power transformer(K, KB, G models only) | |
| Δ | 87-034-962-01 | AC power cord H50(H, HB models only) | |
| Δ | 87-034-578-01 | AC power cord U black(UB model only) | |
| Δ | 82-788-674-01 | AC power cord E50(E, EB models only) | |
| Δ | 82-788-673-01 | AC power cord K50(K, KB, G models only) | |
| ΔJ18 | 87-049-017-01 | AC outlet(UB model only) | |
| ΔJ18 | 87-032-996-01 | AC outlet(K, KB, G models only) | |
| Δ | 87-085-184-01 | Cord bushing(H, HB, UB models only) | |
| Δ | 87-085-185-01 | Cord bushing(E, EB, K, KB, G models only) | |
| CPI, CON3 | 81-731-633-01 | Photo transistor amp. unit EUR-3619A | |

Note: Combination Circuit Board

The parts on the electrical parts list which are indicated by an asterisk (*) are supplied as one single combined circuit board. Therefore, they will not be supplied separately. If this becomes necessary, please order the entire circuit board.

Combination circuit board A 81-731-640-11

PCB-A 81-731-641-11

PCB-E 81-731-642-11

PCB-F 81-731-643-11

Combination circuit board B 81-731-647-11

PCB-B 81-731-649-11

PCB-C 81-731-648-11



PCB-D 81-731-650-11

ELECTRICAL MAIN PARTS LIST

“***” shows unavailable Repair Part.

| Symbol No. | Part No. | Description | Remark |
|--------------------------------------|---------------|---------------------------------|--------|
| < MAIN CIRCUIT BOARD SECTION > | | | |
| PCB-A | * | Main circuit board | |
| IC1.2 | 87-020-162-01 | IC. STK1070 | |
| IC5 | 87-027-787-01 | IC. μ PC1237H | |
| Q11.12 | 89-318-154-01 | Transistor. 2SC1815(Y) | |
| Q13 | 89-334-210-01 | Transistor. 2SC3421 | |
| Q14 | 89-113-580-01 | Transistor. 2SA1358 | |
| Q15 | 89-110-154-01 | Transistor. 2SA1015(Y) | |
| D2.6 | 87-027-469-01 | Zener diode. HZ16-2 | |
| D9.10 | 87-027-097-01 | Diode. 1S1555 | |
| D15.16.17.18 | 87-027-402-01 | Zener diode. HZ24-2L | |
| D19.20.21.22 | 87-027-626-01 | Diode. S5277D | |
| D25.28 | 87-027-365-01 | Diode. S5277B | |
| D23 | 87-027-788-01 | Diode. D5FB20 | |
| D24 | 87-027-376-01 | Diode. 1B4B41 | |
| L1.2 | 87-005-158-01 | Inductor coil. 1 μ H | |
| RY-1 | 87-045-223-01 | RelayG4W. 24V-2 | |
| RY-2 | 87-045-224-01 | RelayG2R. 24V-2 | |
| J1 | 81-730-623-01 | Jack Ass'y (INPUT. SPEAKER) | |
| SW1 | 87-031-822-01 | Push-switch (INDICATOR) | |
| SW3.4 | 87-031-805-01 | Push-switch (SPEAKER A. B) | |
| PIN1 | 87-032-897-01 | Pin. 3P | *** |
| PIN2 | 82-481-649-01 | Pin. 2P | *** |
| CON3 | 87-049-362-01 | Connector ass'y. 7P | *** |
| < Resistors > | | | |
| R57.58 | 87-025-120-01 | 10 Ω 1W Metal film | |
| R59.60 | 87-025-193-01 | 10 Ω 2W Metal film | |
| Δ R123 | 87-029-361-01 | 3.3 Ω 1/2W Fuse resistor | |
| < Capacitors > | | | |
| C53.54 | 87-015-914-01 | 47 μ F 100V Electrolytic | |
| C55.56 | 87-015-916-01 | 22 μ F 100V Electrolytic | |
| C57.58 | 87-015-945-01 | 15.000 μ F 56V Electrolytic | |
| C60 | 87-015-450-01 | 220 μ F 25V Electrolytic BP | |
| C61 | 89-652-615-01 | 1000 μ F Ceramic | |
| < INDICATOR CIRCUIT BOARD SECTION > | | | |
| PCB-B | * | Indicator circuit board | |
| IC3.4 | 87-020-161-01 | IC. AN6891 | |
| Q16.17 | 89-318-154-01 | Transistor. 2SC1815(Y) | |
| Q18 | 89-206-051-21 | Transistor. 2SB605K(L) | |
| Q19 | 89-405-711-21 | Transistor. 2SD571K(L) | |
| D11.12.13.14.27 | 87-027-097-01 | Diode. 1S1555 | |
| D26 | 87-027-499-01 | Zener diode. HZ15-3 | |
| D31.32.33.34.35.36.37.38.39.40.41.42 | 87-020-164-01 | LED. Red. GL-106-R5 | |
| D43.44.45.46.47.48.49.50.51.52 | 87-020-165-01 | LED. Red. GL-105-R5 | |
| D53.54 | 87-020-163-01 | LED. Green. GL-9NG23 | |
| D55 | 87-020-128-01 | LED. Red. GL-2PR2 | |
| Δ SW2 | 87-031-692-01 | Push-switch (POWER) | |
| PIN3 | 87-049-361-01 | Pin. 7P | *** |
| < Capacitors > | | | |
| C35.36.37.38.39.40 | 87-015-698-01 | 4.7 μ F 50V Electrolytic | |

| Symbol No. | Part No. | Description | Remark |
|---|---------------|--------------------------------------|--------|
| < DRIVER-1 CIRCUIT BOARD SECTION > | | | |
| PCB-C | * | Driver-1 circuit board | |
| Q1 | 89-503-890-01 | FET. 2SK389 | |
| Q3 | 89-318-154-01 | Transistor. 2SC1815(Y) | |
| Q5 | 89-333-810-01 | Transistor. 2SC3381 | |
| Q7 | 89-111-246-01 | Transistor. 2SA1124R | |
| Q9 | 89-326-326-01 | Transistor. 2SC2632(R) | |
| D1.5 | 87-027-469-01 | Zener diode. HZ16-2 | |
| D3.7 | 87-027-097-01 | Diode. 1S1555 | |
| SFR1 | 87-021-856-01 | Semi-fixed resistor. 100 Ω -B | |
| PIN4.5.6 | 87-049-113-01 | Pin. 3P | *** |
| < Capacitor > | | | |
| C1 | 87-015-141-01 | 10 μ F 16V Electrolytic BP | |
| < DRIVER-2 CIRCUIT BOARD SECTION > | | | |
| PCB-D | * | Driver-2 circuit board | |
| Q2 | 89-503-890-01 | FET. 2SK389 | |
| Q4 | 89-318-154-01 | Transistor. 2SC1815Y | |
| Q6 | 89-333-810-01 | Transistor. 2SC3381 | |
| Q8 | 89-111-246-01 | Transistor. 2SA1124R | |
| Q10 | 89-326-326-01 | Transistor. 2SC2632R | |
| D2.6 | 87-027-469-01 | Zener diode. HZ16-2 | |
| D4.8 | 87-027-097-01 | Diode. 1S1555 | |
| SFR2 | 87-021-856-01 | Semi-fixed resistor. 100 Ω -B | |
| PIN7.8.9 | 87-049-113-01 | Pin. 3P | *** |
| < Capacitor > | | | |
| C2 | 87-015-141-01 | 10 μ F 16V Electrolytic BP | |
| < JACK CIRCUIT BOARD SECTION > | | | |
| PCB-E | * | Jack circuit board | |
| J2 | 87-049-360-01 | Jack. 6.3 ϕ (PHONES) | |
| < Resistor > | | | |
| R75.76 | 87-025-055-01 | 270 Ω 2W Metal film | |
| < FUSE-1 CIRCUIT BOARD SECTION > - "UB" MODEL | | | |
| PCB-F | * | Fuse-1 circuit board | |
| Δ F1 | 87-035-313-01 | Fuse. 5A | *** |
| | 87-098-324-01 | Fuse label | *** |
| Δ | 87-033-147-01 | Fuse clamp | *** |
| Δ | 82-304-743-01 | 1P terminal | *** |
| < SWITCH CIRCUIT BOARD SECTION > - "H, HB" MODELS | | | |
| Δ PCB-G | * | Switch circuit board | |
| Δ F1 | 87-035-312-01 | Fuse. 7A | *** |
| | 87-098-074-01 | Fuse label. 7A | *** |
| Δ F2 | 87-035-256-01 | Fuse. 3.15A | *** |
| | 87-098-045-01 | Fuse label. 3.15A | *** |
| Δ SW5 | 87-031-586-01 | Rotary switch (VOLTAGE SELECTOR) | *** |
| Δ | 87-033-147-01 | Fuse clamp | *** |
| Δ | 82-304-743-01 | 1P terminal | *** |

| Symbol No. | Part No. | Description | Remark |
|---|---------------|--|--------|
| < FUSE-2 CIRCUIT BOARD SECTION > - "E, EB, K, KB, G" MODELS | | | |
| Δ PCB-H | * | Fuse-2 circuit board | |
| Δ F1 | 87-035-190-01 | Fuse. "T" 2A | |
| Δ | 87-098-019-01 | Fuse label. "T" 2A | |
| Δ | 87-033-147-01 | Fuse clamp | *** |
| Δ | 82-304-743-01 | 1P terminal | *** |
| < MISCELLANEOUS > | | | |
| Δ T1 | 81-730-606-01 | Power transformer (H, HB. models only) | |
| Δ T1 | 81-730-607-01 | Power transformer (UB model only) | |
| Δ T1 | 81-730-608-01 | Power transformer (E, EB models only) | |
| Δ T1 | 81-730-609-01 | Power transformer (K, KB, G models only) | |
| Δ | 87-034-962-01 | AC power cord (H model only) | |
| Δ | 87-034-992-01 | AC power cord (HB model only) | |
| Δ | 87-034-578-01 | AC power cord (UB model only) | |
| Δ | 82-788-674-01 | AC power cord (E, EB models only) | |
| Δ | 87-034-708-01 | AC power cord (K, KB, G models only) | |
| Δ | 87-085-184-01 | Cord bushing (H, HB, UB models only) | |
| Δ | 87-085-185-01 | Cord bushing (E, EB, K, KB, G models only) | |
| | 82-798-601-01 | Heatsink (H, HB, UB models only) | |
| | 81-730-624-01 | Heatsink. EL (E, EB, K, KB, G models only) | |
| | 81-730-625-01 | Heatsink. ER (E, EB, K, KB, G models only) | |
|  Safety component symbol | | | |
| This symbol is given to important parts which serve to maintain the safety of the product, and which are made to conform to special safety specifications. Therefore, when replacing a component with this symbol, make absolutely sure that you use a designated part. | | | |
| C-MOS IC handling precaution | | | |
| The C-MOS IC's construction makes this part susceptible to damage by static electricity and so take sufficient care in regard to following articles. | | | |
| 1. Need to be put on conductive sheet, to be put in a metallic box and to be wrapped by aluminium foil for transportation and deposit. | | | |
| 2. To use solder iron less than 40W (less than 260°C) of power consumption for soldering. But do not overheat more than 10 second. | | | |
| 3. Do not perform a conductivity test with a tester, etc. Refer to the circuit voltages of each part. | | | |
| 4. The ICs on the electrical parts which are indicated by an C-MOS IC symbol mark (). | | | |

Note: Comb
The parts or
asterisk (*)
Therefore, th
necessary, ple

Combination
PCB-A 81
PCB-B 81
PCB-C 81
PCB-D 81
PCB-E 81
PCB-F 81
PCB-G 81
PCB-H 81

shows unavailable Repair Part.

AKER)

B)

l film
l film
resistor

ctrolytic
ctrolytic
ctrolytic
ctrolytic BP
amic

N >

rolytic


BX-110 H,HB,UB,E
EB,K,KB,G


BX-110 H,HB,UB,E
EB,K,KB,G

AIWA®

| Remark | Symbol No. | Part No. | Description | Remark |
|--------|--|---------------|----------------------------------|--------|
| | < DRIVER-1 CIRCUIT BOARD SECTION > | | | |
| | PCB-C | * | Driver-1 circuit board | |
| | Q1 | 89-503-890-01 | FET. 2SK389 | |
| | Q3 | 89-318-154-01 | Transistor. 2SC1815(Y) | |
| | Q5 | 89-333-810-01 | Transistor. 2SC3381 | |
| | Q7 | 89-111-246-01 | Transistor. 2SA1124R | |
| | Q9 | 89-326-326-01 | Transistor. 2SC2632(R) | |
| | D1.5 | 87-027-469-01 | Zener diode. HZ16-2 | |
| | D3.7 | 87-027-097-01 | Diode. 1S1555 | |
| | SFR1 | 87-021-856-01 | Semi-fixed resistor. 100Ω-B | |
| | PIN4.5.6 | 87-049-113-01 | Pin. 3P | *** |
| | | | < Capacitor > | |
| | C1 | 87-015-141-01 | 10μF 16V Electrolytic BP | |
| | < DRIVER-2 CIRCUIT BOARD SECTION > | | | |
| | PCB-D | * | Driver-2 circuit board | |
| | Q2 | 89-503-890-01 | FET. 2SK389 | |
| | Q4 | 89-318-154-01 | Transistor. 2SC1815Y | |
| | Q6 | 89-333-810-01 | Transistor. 2SC3381 | |
| | Q8 | 89-111-246-01 | Transistor. 2SA1124R | |
| | Q10 | 89-326-326-01 | Transistor. 2SC2632R | |
| | D2.6 | 87-027-469-01 | Zener diode. HZ16-2 | |
| | D4.8 | 87-027-097-01 | Diode. 1S1555 | |
| | SFR2 | 87-021-856-01 | Semi-fixed resistor. 100Ω-B | |
| | PIN7.8.9 | 87-049-113-01 | Pin. 3P | *** |
| | | | < Capacitor > | |
| | C2 | 87-015-141-01 | 10μF 16V Electrolytic BP | |
| | < JACK CIRCUIT BOARD SECTION > | | | |
| | PCB-E | * | Jack circuit board | |
| | J2 | 87-049-360-01 | Jack. 6.3φ(PHONES) | |
| | | | < Resistor > | |
| | R75.76 | 87-025-055-01 | 270Ω 2W Metal film | |
| | < FUSE-1 CIRCUIT BOARD SECTION > - "UB" MODEL | | | |
| | PCB-F | * | Fuse-1 circuit board | |
| | ΔF1 | 87-035-313-01 | Fuse. 5A | |
| | | 87-098-324-01 | Fuse label | |
| | Δ | 87-033-147-01 | Fuse clamp | |
| | Δ | 82-304-743-01 | 1P terminal | *** |
| | < SWITCH CIRCUIT BOARD SECTION > - "H,HB" MODELS | | | |
| | ΔPCB-G | * | Switch circuit board | |
| | ΔF1 | 87-035-312-01 | Fuse. 7A | |
| | | 87-098-074-01 | Fuse label. 7A | |
| | ΔF2 | 87-035-256-01 | Fuse. 3.15A | |
| | | 87-098-045-01 | Fuse label. 3.15A | |
| | ΔSW5 | 87-031-586-01 | Rotary switch (VOLTAGE SELECTOR) | *** |
| | Δ | 87-033-147-01 | Fuse clamp | |
| | Δ | 82-304-743-01 | 1P terminal | *** |

| Symbol No. | Part No. | Description | Remark |
|---|---------------|--|--------|
| < FUSE-2 CIRCUIT BOARD SECTION > - "E,EB,K,KB,G" MODELS | | | |
| ΔPCB-H | * | Fuse-2 circuit board | |
| ΔF1 | 87-035-190-01 | Fuse. "T" 2A | |
| | 87-098-019-01 | Fuse label. "T" 2A | |
| Δ | 87-033-147-01 | Fuse clamp | |
| Δ | 82-304-743-01 | 1P terminal | *** |
| < MISCELLANEOUS > | | | |
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| ΔT1 | 81-730-607-01 | Power transformer (UB model only) | |
| ΔT1 | 81-730-608-01 | Power transformer (E, EB models only) | |
| ΔT1 | 81-730-609-01 | Power transformer (K, KB, G models only) | |
| Δ | 87-034-962-01 | AC power cord (H model only) | |
| Δ | 87-034-992-01 | AC power cord (HB model only) | |
| Δ | 87-034-578-01 | AC power cord (UB model only) | |
| Δ | 82-788-674-01 | AC power cord (E, EB models only) | |
| Δ | 87-034-708-01 | AC power cord (K, KB, G models only) | |
| Δ | 87-085-184-01 | Cord bushing (H, HB, UB models only) | |
| Δ | 87-085-185-01 | Cord bushing (E, EB, K, KB, G models only) | |
| | 82-798-601-01 | Heatsink (H, HB, UB models only) | |
| | 81-730-624-01 | Heatsink. EL (E, EB, K, KB, G models only) | |
| | 81-730-625-01 | Heatsink. ER (E, EB, K, KB, G models only) | |

 Safety component symbol
This symbol is given to important parts which serve to maintain the safety of the product, and which are made to conform to special safety specifications. Therefore, when replacing a component with this symbol, make absolutely sure that you use a designated part.

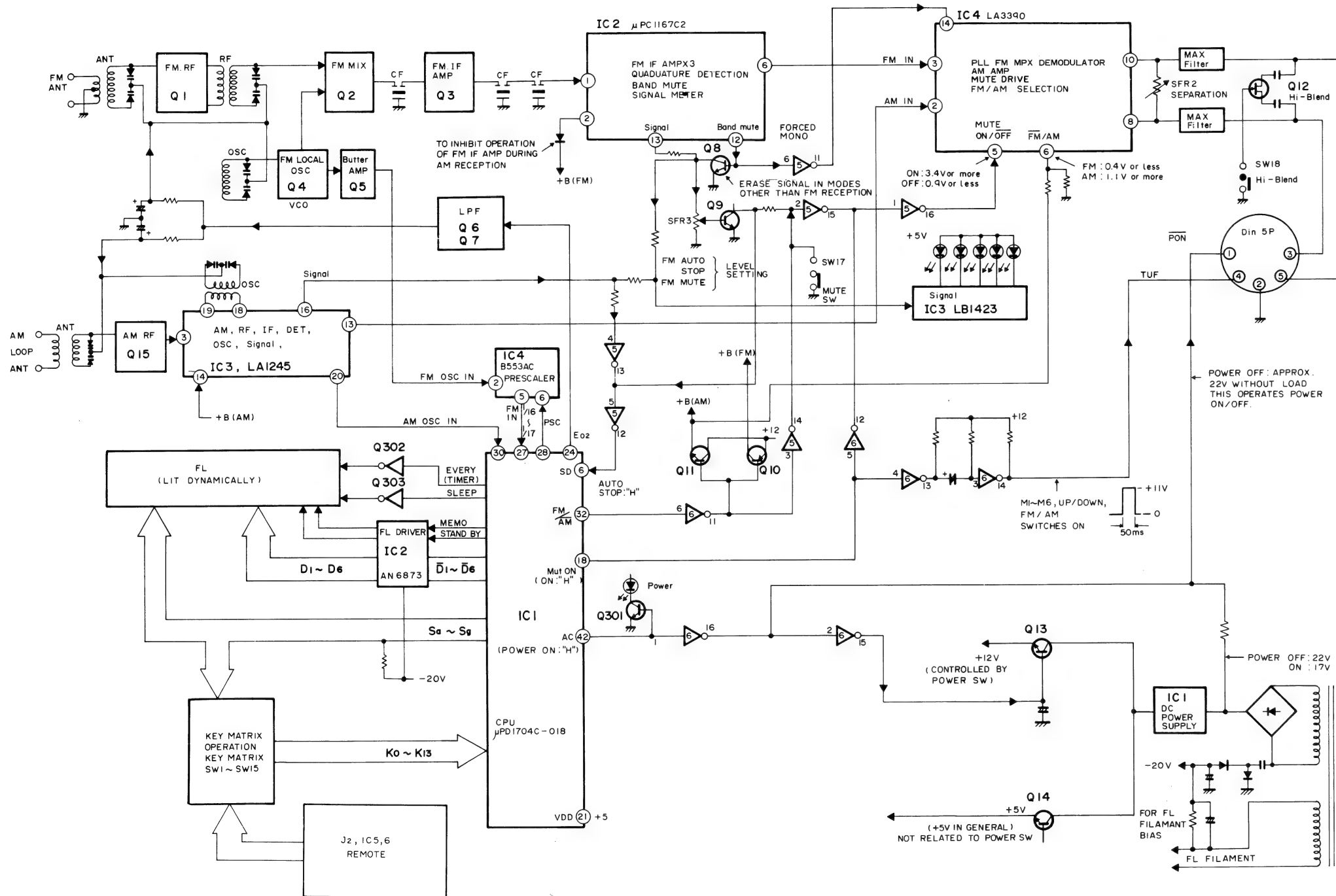
C-MOS IC handling precaution
The C-MOS IC's construction makes this part susceptible to damage by static electricity and so take sufficient care in regard to following articles.
1. Need to be put on conductive sheet, to be put in a metallic box and to be wrapped by aluminium foil for transportation and deposit.
2. To use solder iron less than 40W (less than 260°C) of power consumption for soldering. But do not overheat more than 10 second.
3. Do not perform a conductivity test with a tester, etc. Refer to the circuit voltages of each part.
4. The ICs on the electrical parts which are indicated by an C-MOS IC symbol mark ().

Note; Combination Circuit Board
The parts on the electrical parts list which are indicated by an asterisk (*) are supplied as one single combined circuit board. Therefore, they will not be supplied separately. If this becomes necessary, please order the entire circuit board.

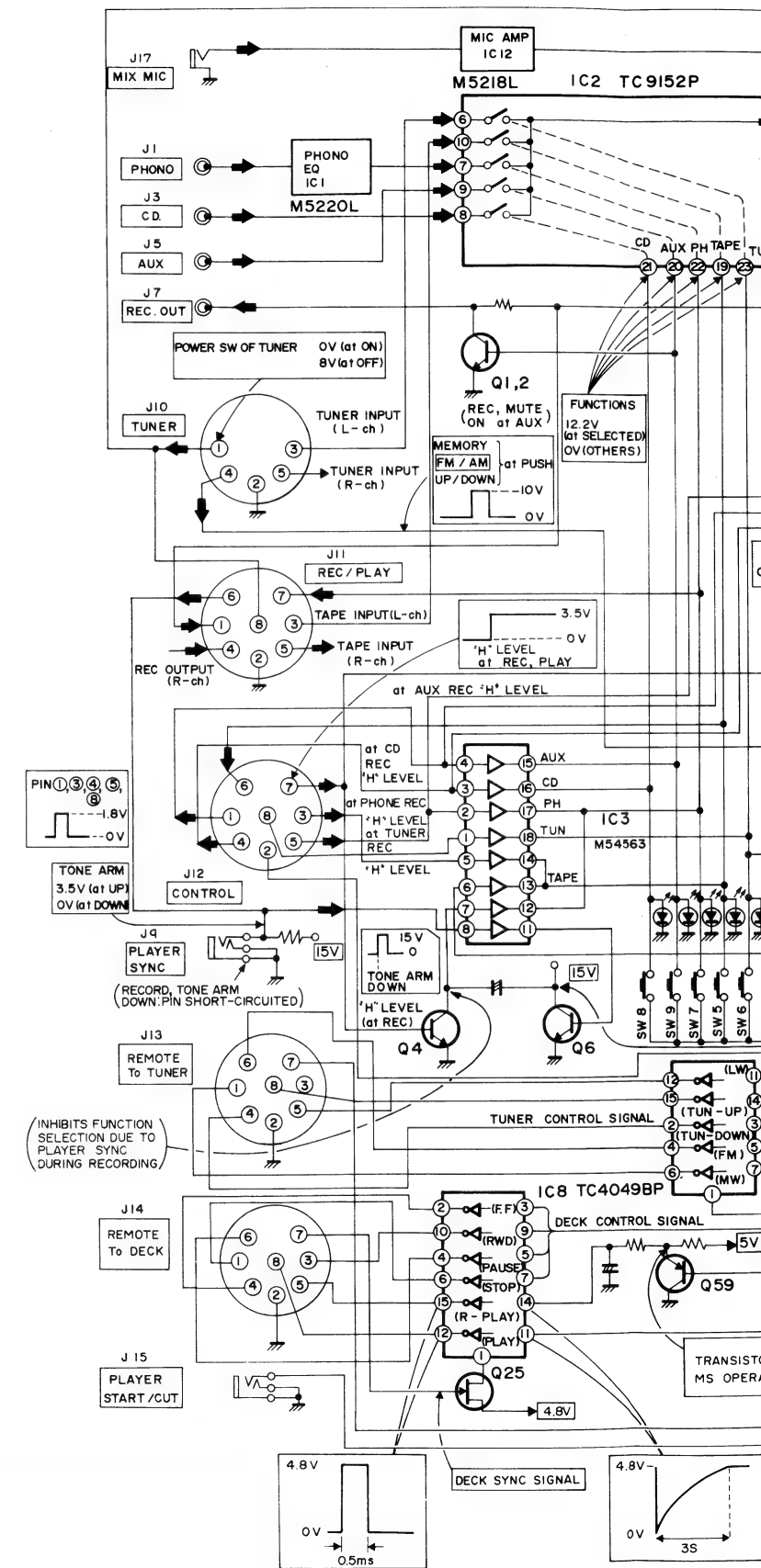
Combination circuit board 81-730-610-11
PCB-A 81-730-611-11
PCB-B 81-730-612-01
PCB-C 81-730-616-01
PCB-D 81-730-617-01
PCB-E 81-730-613-01
PCB-F 81-730-614-01 (UB model only)
PCB-G 81-730-615-01 (H,HB models only)
PCB-H 81-730-618-01 (E,EB,K,KB,G models only)

BLOCK DIAGRAM

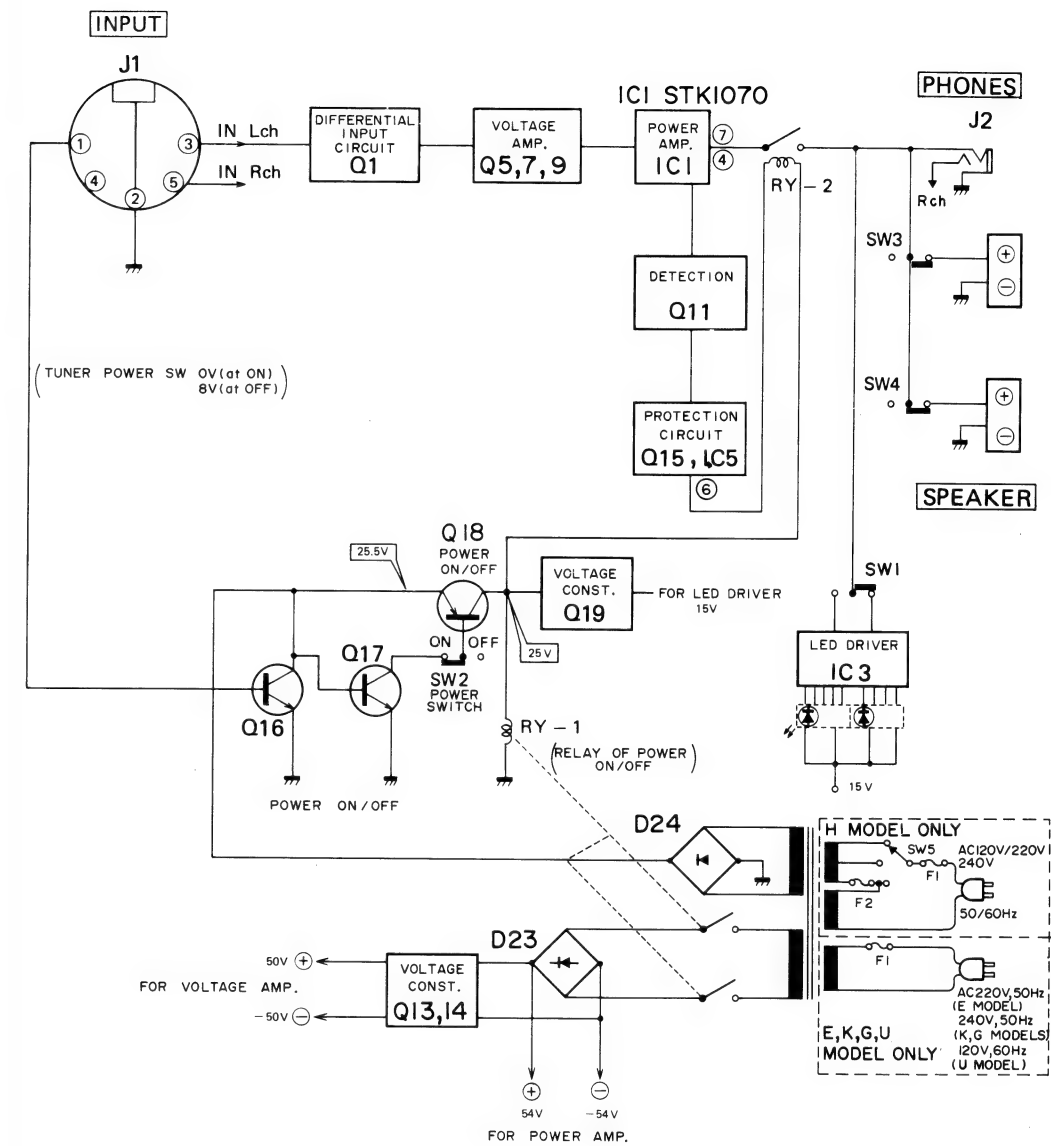
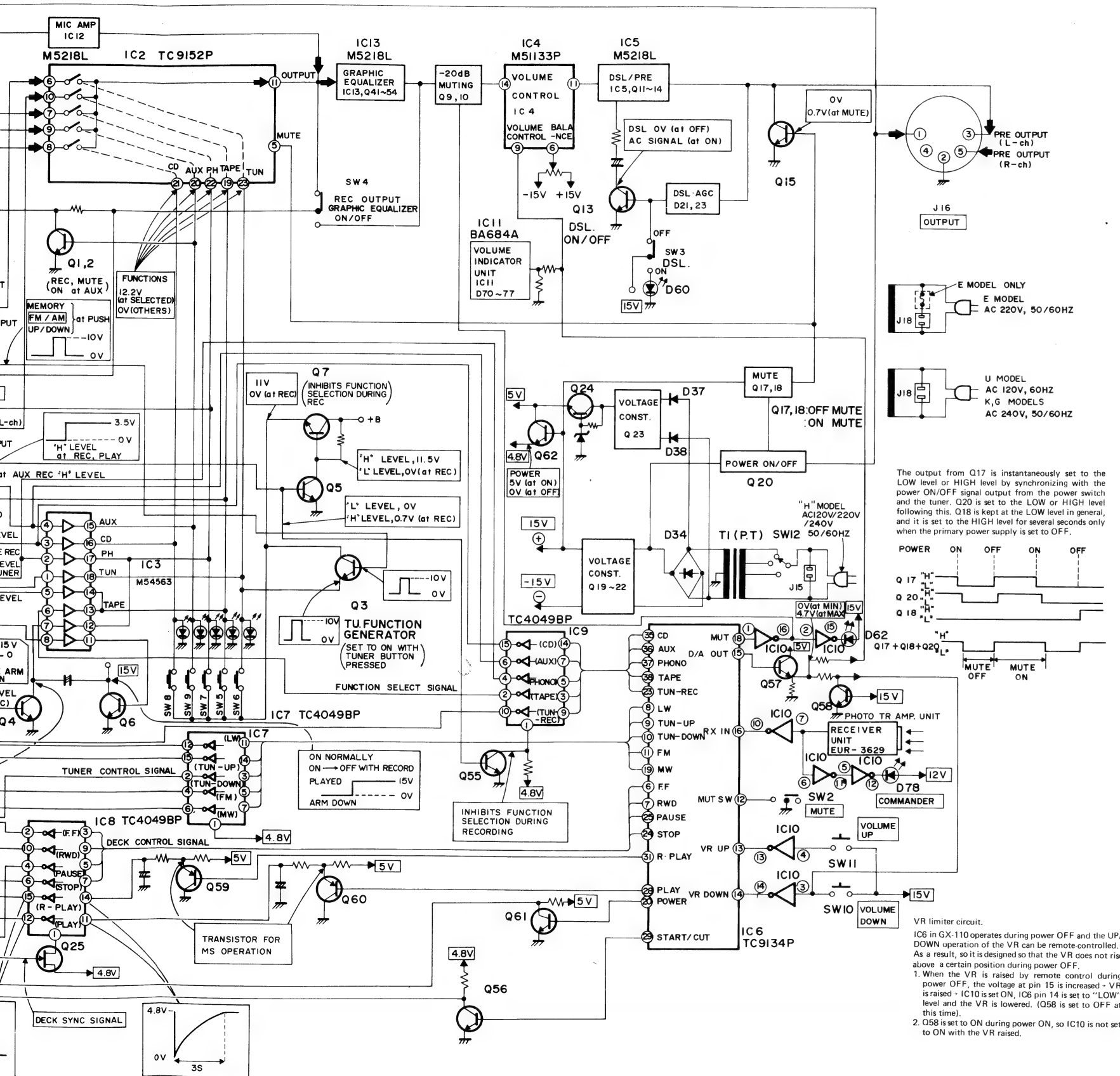
•TX-110



•GX-110



•BX-110



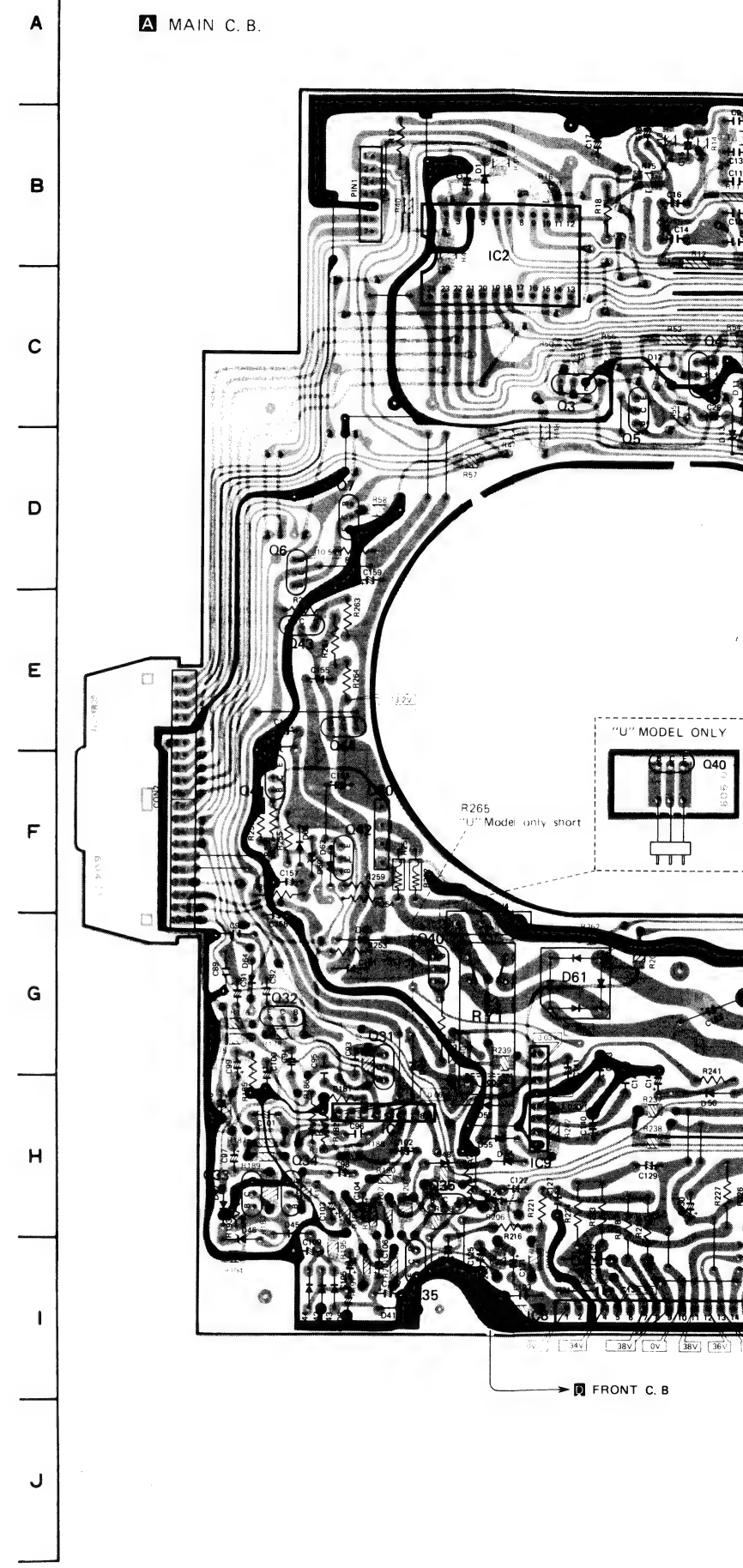
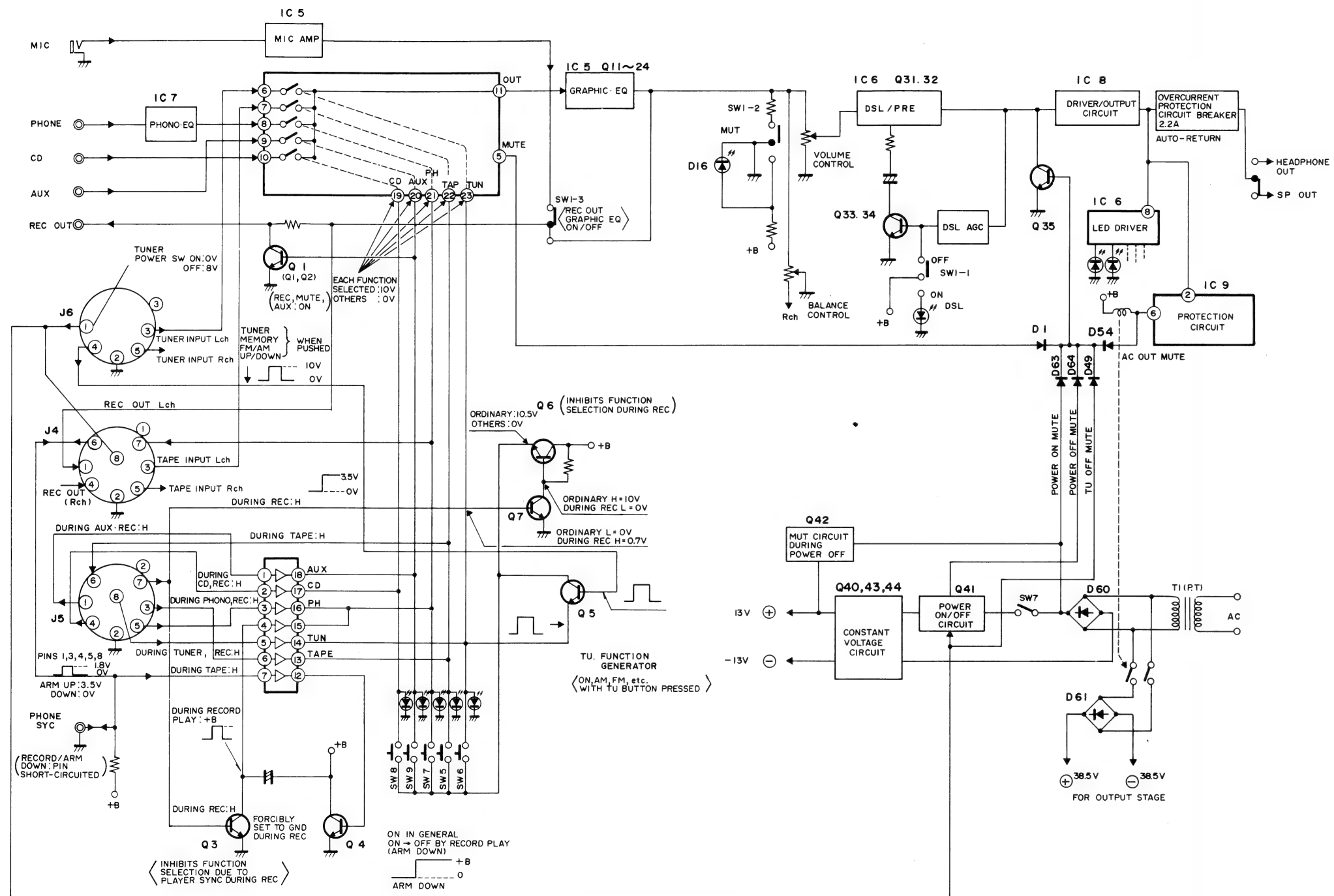
The output from Q17 is instantaneously set to the LOW level or HIGH level by synchronizing with the power ON/OFF signal output from the power switch and the tuner. Q20 is set to the LOW or HIGH level following this. Q18 is kept at the LOW level in general, and it is set to the HIGH level for several seconds only when the primary power supply is set to OFF.

POWER ON OFF ON OFF
Q17 "H"
Q20 "H"
Q18 "H"

VR limiter circuit.
IC6 in GX-110 operates during power OFF and the UP/DOWN operation of the VR can be remote-controlled. As a result, so it is designed so that the VR does not rise above a certain position during power OFF.
1. When the VR is raised by remote control during power OFF, the voltage at pin 15 is increased - VR is raised - IC10 is set ON, IC6 pin 14 is set to "LOW" level and the VR is lowered. (Q58 is set to OFF at this time).
2. Q58 is set to ON during power ON, so IC10 is not set to ON with the VR raised.

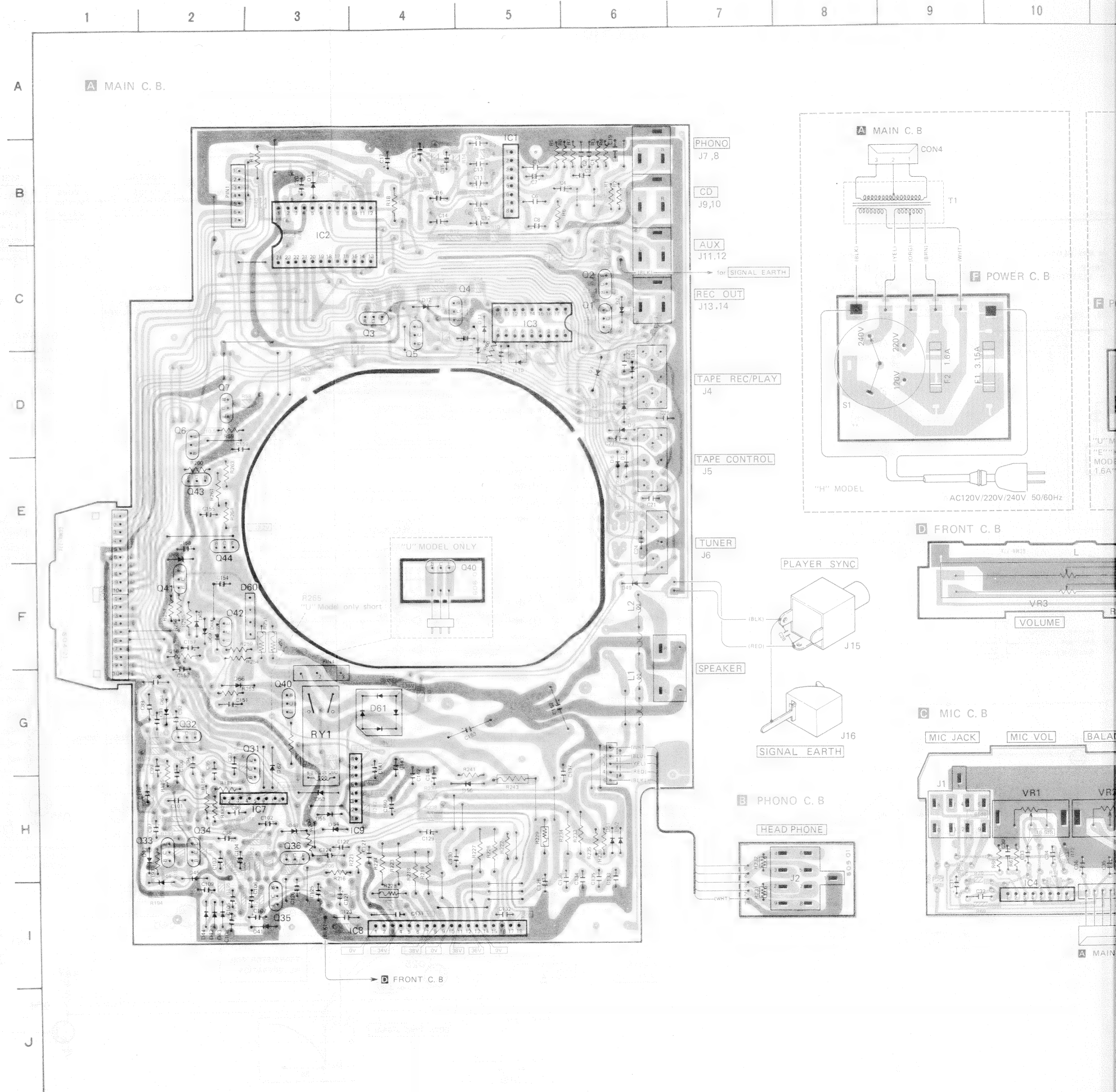
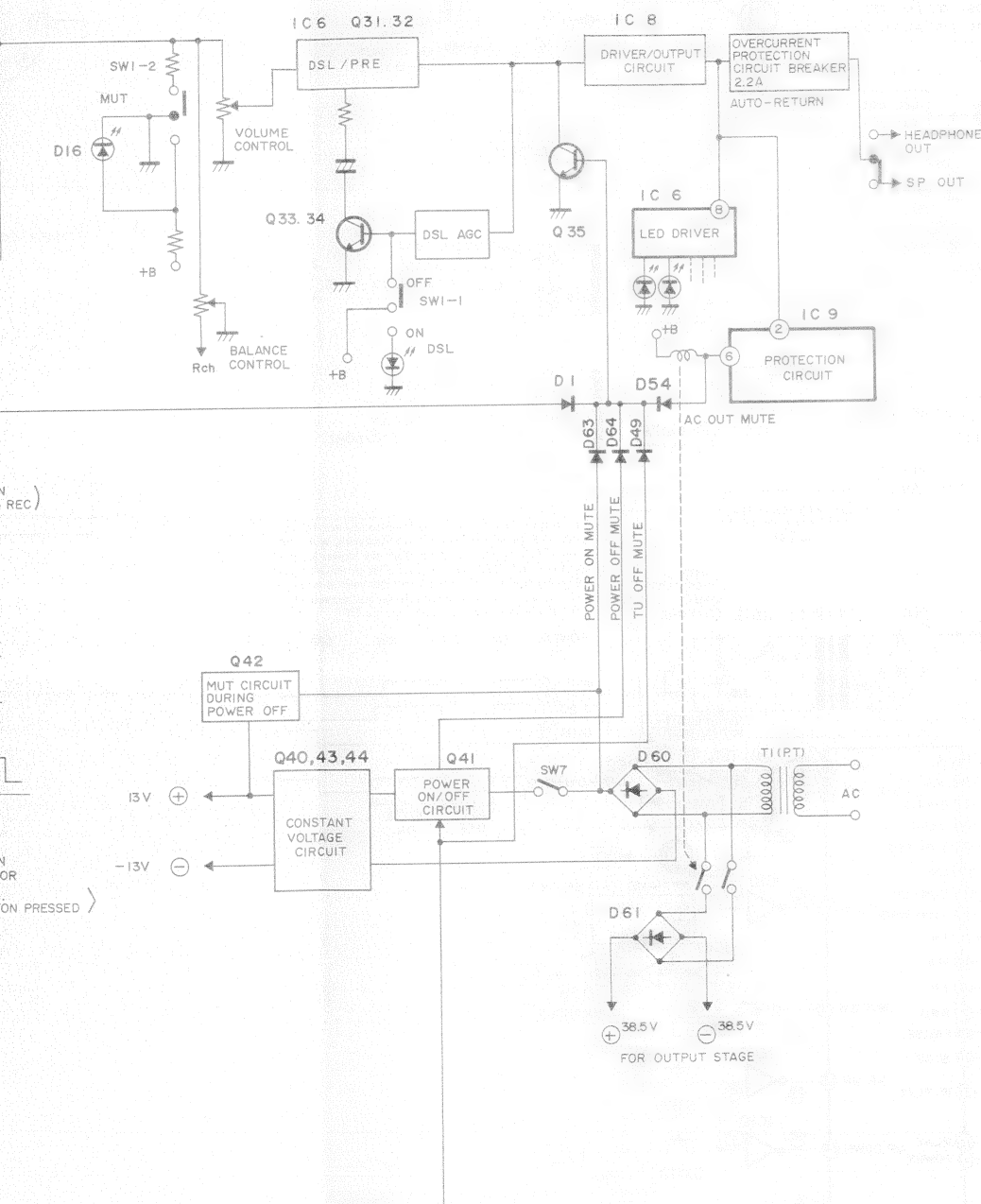
•MX-90

WIRING (MX-90)

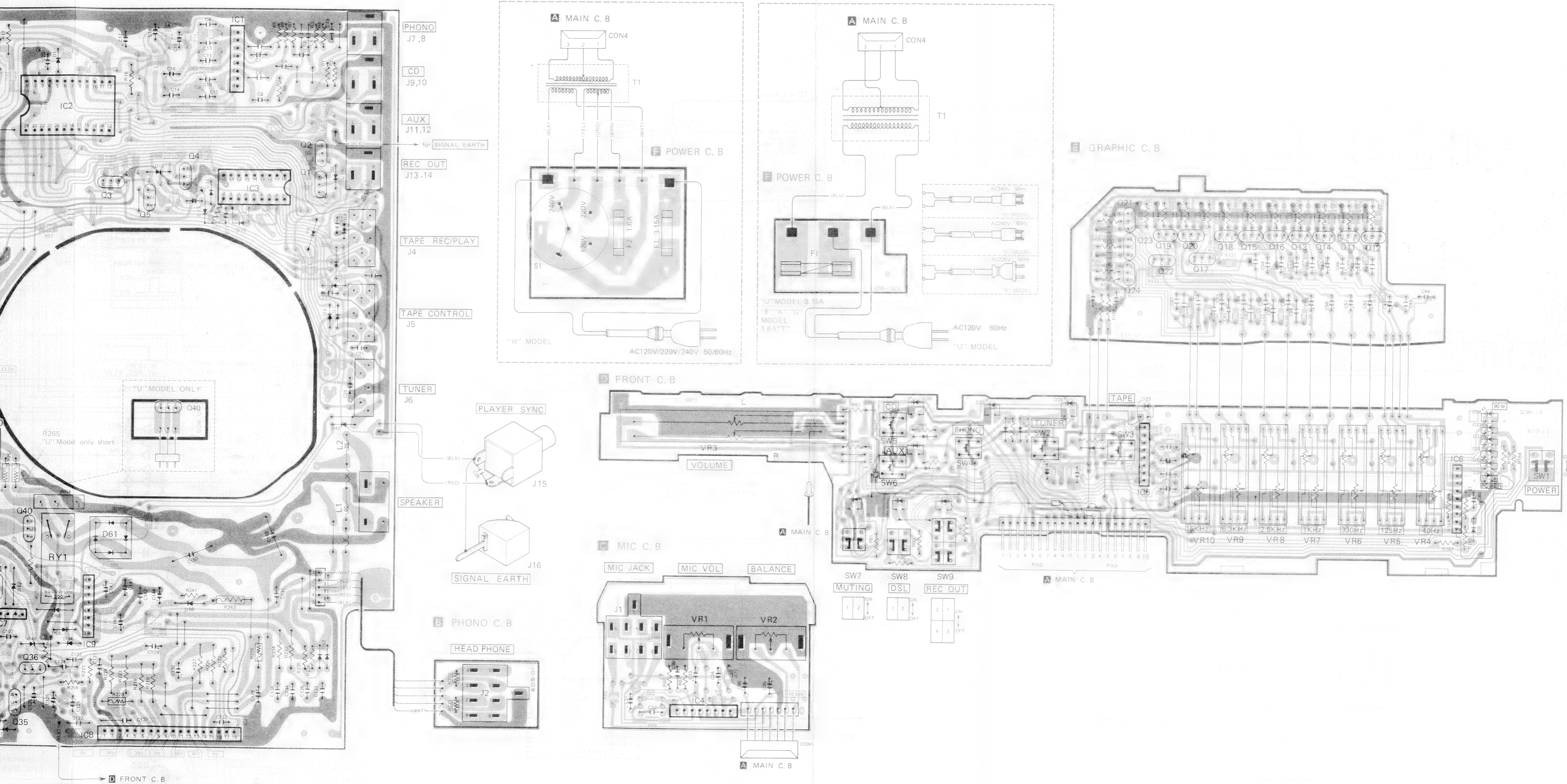


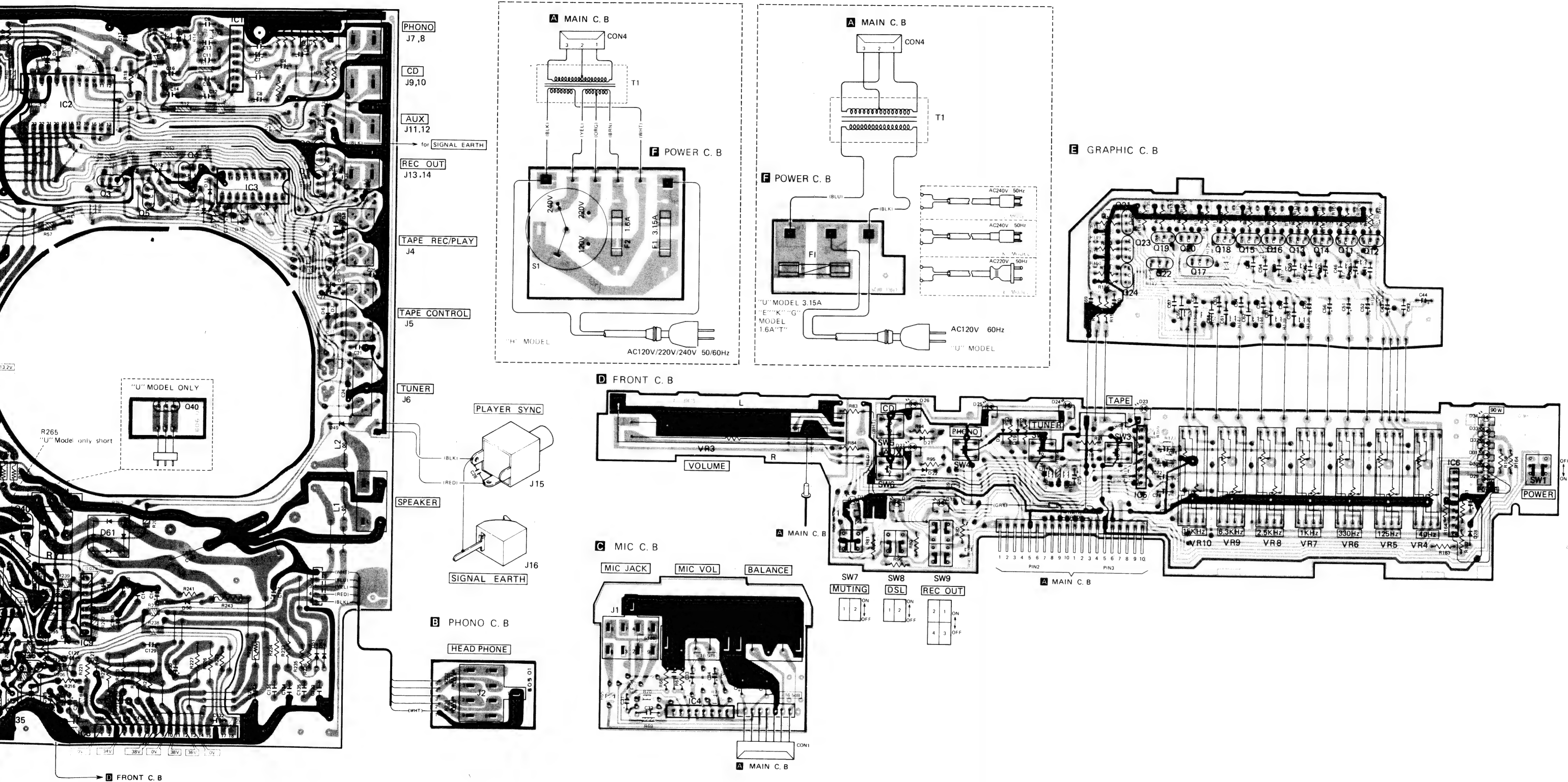
NOTES (1) ☐ Earth pattern ☐ Component side pattern ☐ Others pattern
(2) The voltage is the reference value measured with a tester (20 K ohms/V DC) when there are no signals.
But () is with AM reception.

WIRING (MX-90)



| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|
| 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|

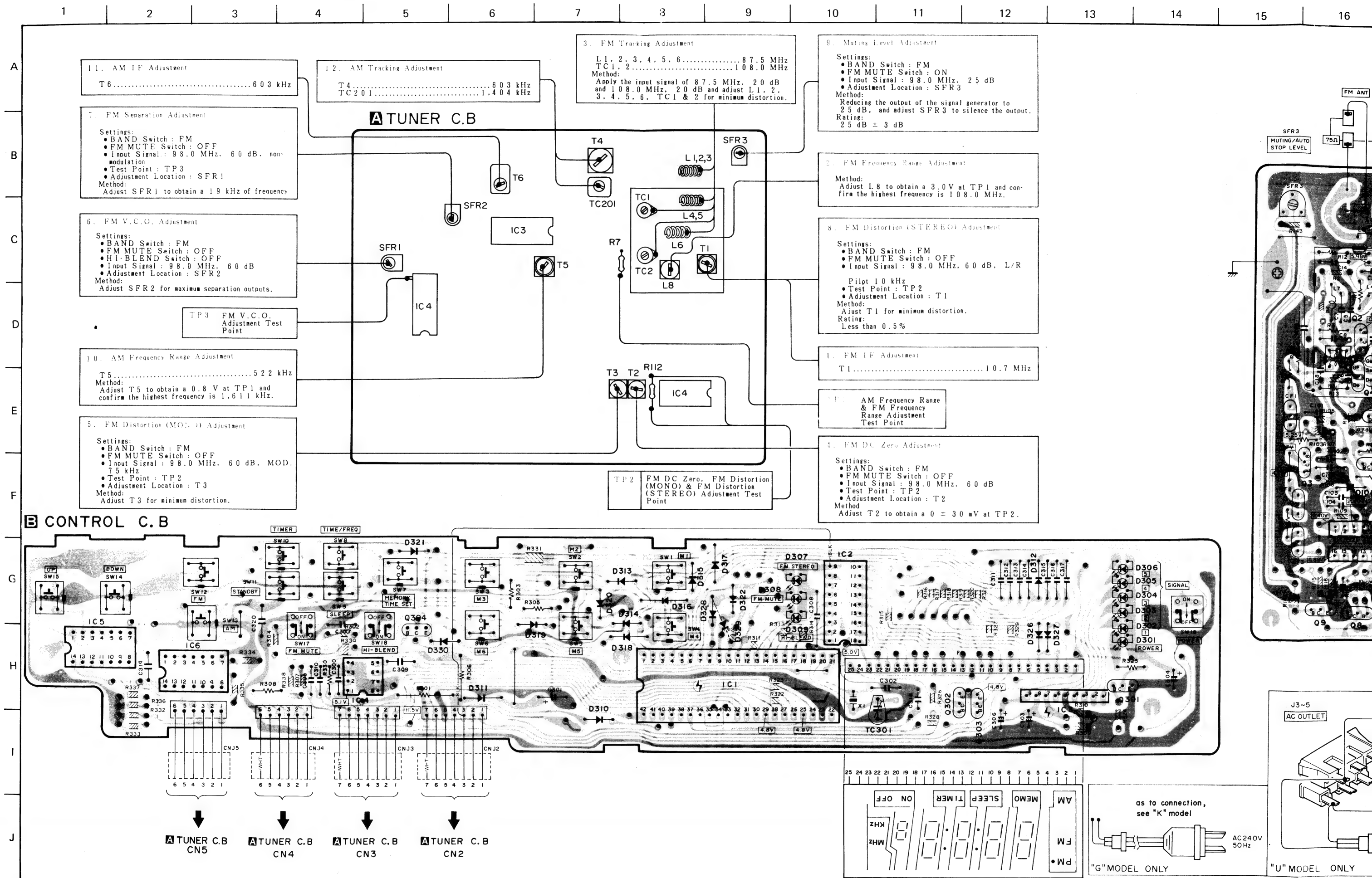




NOTES (1) Earth pattern Printed resistor pattern Component side pattern Others pattern
 (2) The voltage is the reference value measured with a tester (20 K ohms/V DC) when there are no signals.
 But () is with AM reception.

The ICs on the electrical parts which are indicated by an C-MOS IC symbol mark ().

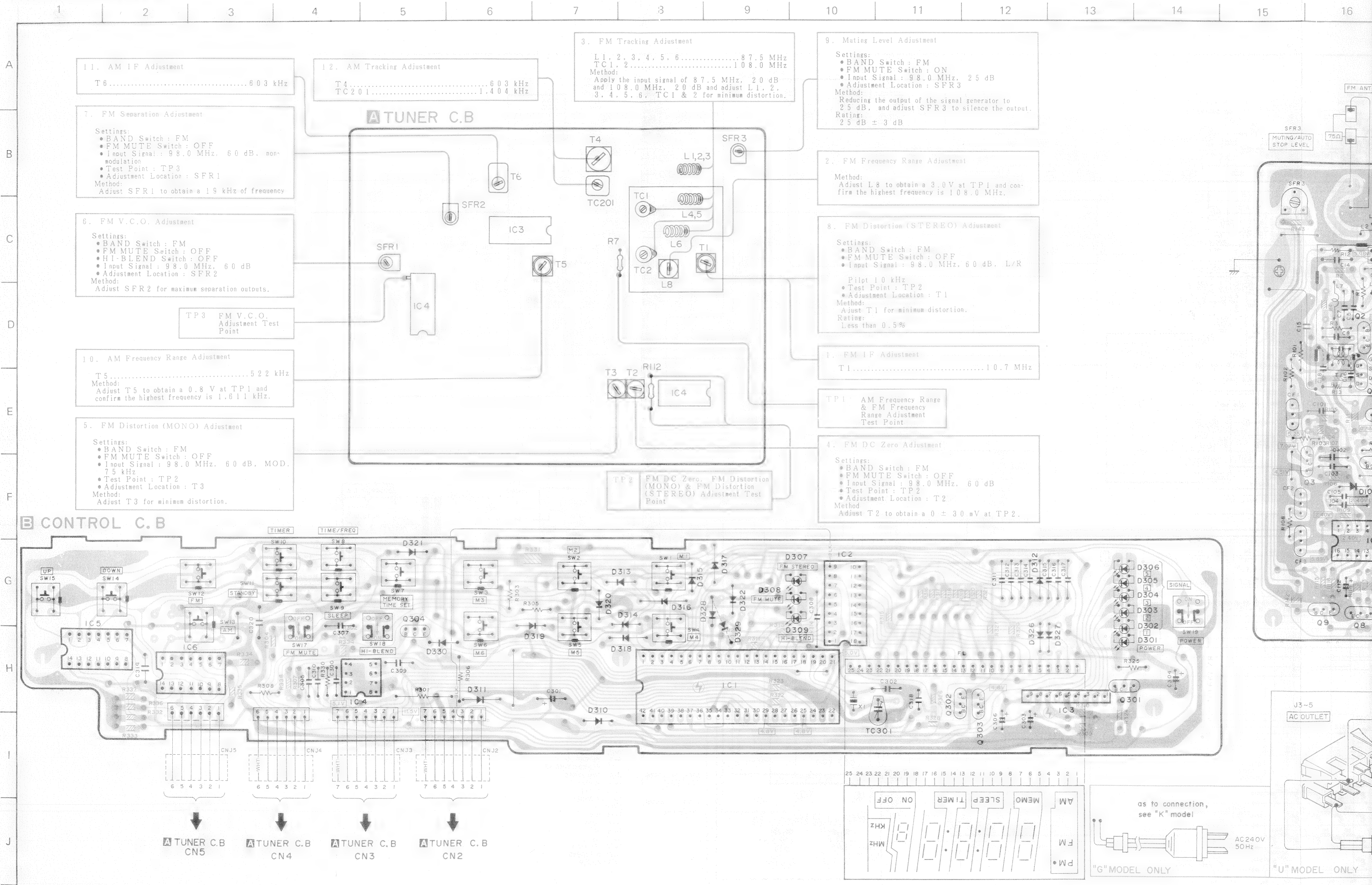
WIRING (TX-110 H, U, G)



NOTES (1) Earth pattern Printed resistor pattern Component side pattern Others pattern
(2) The voltage is the reference value measured with a tester (20 K ohms/V DC) when there are no signals.
But () is with AM reception.

The ICs on the electrical parts which are indicated by an C-MOS IC symbol mark ().

WIRING (TX-110 H, U, G)



A TUNER C.B.

SW20 AM STEP

J1 (3)

J2 (5)

J3 (5)

Legend:

- 5 - RED
- 4 - RED
- 3 - BLU
- 2 - BLU
- 1 - BLU

AC Power Connections:

"U" MODEL ONLY

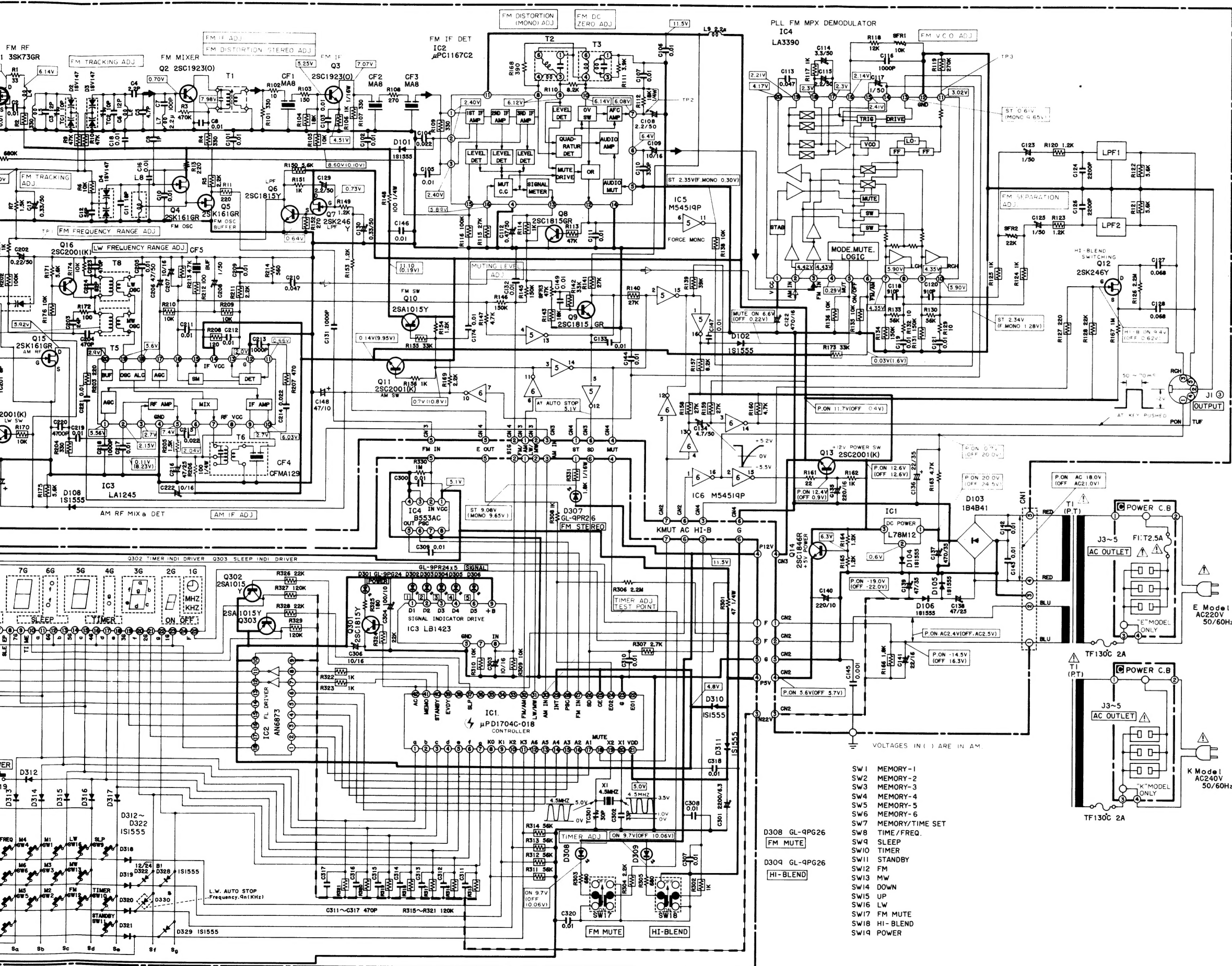
AC120V 60Hz

"H" MODEL ONLY

AC120V/220-240V 50/60Hz

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|





- VOLTAGES IN () ARE IN AM.
- SW1 MEMORY-1
 - SW2 MEMORY-2
 - SW3 MEMORY-3
 - SW4 MEMORY-4
 - SW5 MEMORY-5
 - SW6 MEMORY-6
 - SW7 MEMORY/TIME SET
 - SW8 TIME/FREQ.
 - SW9 SLEEP
 - SW10 TIMER
 - SW11 STANDBY
 - SW12 FM
 - SW13 MW
 - SW14 DOWN
 - SW15 UP
 - SW16 LW
 - SW17 FM MUTE
 - SW18 HI-BLEND
 - SW19 POWER
- D308 GL-9PG26
FM MUTE
- D309 GL-9PG26
HI-BLEND

